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AMERICAN VETERINARY REVIEW.

JULY, 1909.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, May 15, 1909.

Referring to a part of my chronicle of last January, where I was reviewing the series of the excellent articles of the learned Editor of the *Journal of Comparative Pathology and Therapeutics* where the nature of the microbe of Epithelioma Contagiosum was mentioned, our readers may be interested in the following extract which relates to that disease and which I have found in both the *Agricultural Journal of the Cape of Good Hope* and that of Director McFaydean. At any rate the illustrations that accompany these articles are too characteristic not to deserve reproduction in other veterinary publications. I will borrow from both our contemporaries, the English and the South African journals, the following extracts and illustrations:

"Epithelioma Contagiosum, Avian variola, fowl-pox, or again, sore head, or warts on the head, is very prevalent amongst fowls, turkeys and pigeons in the Cape Colony." I must say before going further that the article is written by Walter Jowett, Veterinary Branch, Department of Agriculture, Cape Town. The author has seen quite a number of fowls suffering with the disease, coming from various parts of the district, and there had been several publications made relating to it.

"Fowl-pox, or Epithelioma Contagiosum, is a highly contagious disease, occurring frequently as an epizootic among fowls, pigeons, turkeys, geese and other birds. It is character-

ized by the presence on the unfeathered or only scantily feathered portions of the skin, of a number of firm wart-like outgrowths of the epidermis. These growths occur specially on the comb, face, wattles, eyelids, skin surrounding the eyes, the openings of the ears, the base of the nostrils and the angles of the mouth.

"According to some observers they may occasionally spread over the feathered portions of the head and neck and they may also occur on the outer surfaces of the thighs, abdomen, under the wings and in the vicinity of the cloaca. At first, they appear as small, rounded or oval, firm, shot-like tubercles projecting above the surrounding swollen skin. Soon they increase in size, may bleed and are often covered with a dirty looking brown or brown red crust. In some cases the warts remain isolated and attain the size of a pea or bean, or again they are arranged in masses of varying size, when they appear as mulberry-like warty growths. When the growths form on the eyelids or on the skin surrounding the eyes, it is not unusual to see the masses cover the entire surface of the eye and more or less interfere with sight. Conjunctivitis then complicate the cases. In the course of three or four weeks, the growths may shrivel up and fall off, after which event, the bird enjoys immunity against subsequent infection. No scar remains. In other cases, the lesions extend: they may make their appearance on the mucous membrane of the mouth and throat. Most of these die. On the mucous membranes the appearance is that of a diphtheric membrane, but it is not of that nature."

* * *

"At the post-morten examination of birds which have died with fowl-pox, beyond the lesions already mentioned on the skin and which may be present in the mouth and throat, lesions in other parts of the body are not usually met. Similar lesions have been shown occurring in the œsophageal mucous membrane, and there is no doubt that when such are present, the inflammatory process may have extended to and involved the intestines.

"The histological structure of the nodules shows marked

thickening of the epidermis and infiltration of the dermis. The proliferating epithelial cells are markedly increased in size and show in the most superficial cell layers small homogeneous flakes or a homogeneous mass, which occupies the greatly bloated cell cavity and presses the cell nucleus aside. The changes in the cells of the mucous membrane are similar.

"It is in the wart-like growths which form on the comb and elsewhere on the skin of infected fowls, that invariably the active virus of fowl-pox exists. Scarify the skin of a fowl which has never had the disease and rub it with one of the tumor masses from a diseased chicken, and lesions of Epithelioma Contagiosum will appear after an incubation of five or six days.

"In relation to the nature of the virus, it is said from researches made by several investigators, that it has been made evident that the causal agent belongs to the group of filtrable viruses, like those of horse-sickness, small-pox, sheep-pox, swine fever and several other diseases. But that, however, it would seem that the virus of chicken-pox is larger than that of some of those diseases, and that it is apparently larger than the causal agent of horse-sickness for instance, the virus of which is able to pass through very fine porcelain filters."

Mr. Jowett concludes his article with the treatment. On the occurrence of an outbreak of chicken-pox, all diseased birds should be isolated. Fowl houses should be cleaned and disinfected. In the early stages of the disease apply frequently iodine or carbolic acid solution. When the mouth and throat are affected, swabbing with a solution made of 5 parts of creolin or carbolic acid, and 100 of each glycerine and water. Birds dying with the disease must be buried deeply or burnt.

* * *

TARTAR EMETIC AS AN ANTHELMINTIC.—The use of tartar emetic as an anthelmintic is not generally recommended. French and English authors seem to ignore it. Winslow, in his last work on Therapeutics, tells us that: "The Germans prescribe tartar emetic very commonly to horses as a parasiticide against

round worms and tape worms. Four or five drachms are given in aqueous solution to the fasting animal and followed by the administration of a dose of oil." And yet is it so frequently used by German practitioners? It must be admitted, however, that such use is not considered by all under the same light. Views differ and some of them I find extracted from the *Deutsche Tierarztliche Wochenschrift* and reproduced in the *Revue Generale* which, if they do not settle the question entirely, present conclusions worth noticing.

Professor Moller is the first who, after saying that tartar emetic is one of the most used anthelmintic, recalls the facts that the therapeutic dose is so close to the toxic, that prescribing it demands the greatest attention. If the classical dose is 20 grammes for the horse, experience has taught that 8 or 10 grammes may produce serious disturbances, although in most cases helminths are expelled with such doses. Intoxication, however, may occur five or six hours after the administration of the drug. The animal acts as if he had laminitis in all four feet, he is lame and unwilling to stir. Besides the local symptoms, pain and heat, there are general serious manifestations: raising of the temperature, congestion of the mucous membranes, hurried breathing, general twitching, accelerated pulse, etc., etc. The general treatment of laminitis gives relief after a few days. Moller has observed all those manifestations in a great number of heavy draught horses, aged 4 to 10 years, which received from 8 to 12 grammes of tartar emetic. Divided doses are harmless to horses, but they are also for the parasites. On account of these results, Moller has given up the use of the drug.

Let us consider the opposite opinion. Fixte in the same Journal contradicts in the most positive manner the statements of Moller. He has never seen the accidents mentioned with doses of 20 grammes given in solution in water 200 or 300 grammes. One day by error 80 grammes of the emetic was given to a horse. No bad effects resulted.

Reissinger, answering Moller, who said that he had seen laminitis with doses of 10 and even 8 grammes, says that he has

administered more than 600 doses of this drug in quantities varying between 15 and 32 grammes. He has never met with an accident. The good effects as an anthelmintic are always most satisfactory.

Dorn also brings his contribution to the question. He has used the drug for many years, and has never observed the slightest accident. Twenty grammes is the dose. Once with 80 grammes a horse had a little diarrhœa, but in all the cases the antiparasitic effects were excellent. In the last case where 80 grammes were given, more than 1,200 helminths were expelled. How can this difference of opinion be settled and the toxic effects mentioned by Moller explained? Practitioners will!

* * *

SYPHILIS IN RABBITS.—I have on various occasions in these pages called the attention of our readers to questions of comparative medicine as it has been my good luck to meet them. The experiments of Dr. Piorkowsky, trying to give syphilis to horses and rabbits by intra-venous and sub-cutaneous injections of virus; those of Prof. Metchnikoff with the same disease in monkeys, have been recorded in the REVIEW. To-day I will mention those that have been made by a veterinarian, also a graduate of medicine, D. G. Roussel, where he used syphilis as the disease to experiment with, and, again, rabbits in preference to any other animals.

This study of Experimental Medicine has been related in a large pamphlet under the title of "Syphilis in Rabbits." In it a general review of all the works done previously by others is presented rapidly, and then the whole history of the experiments. These consist in inoculations of syphilitic virus in three different manners: Intra-corneal, corneal scarifications, and intra-ocular inoculations. The symptomatology following these various operations, the incubation and march of the disease, the pathological anatomy are minutely described, as well as the results obtained by the passage of the virus in series and infections of other animals which formed a solid basis for evidences found as to the essen-

tially syphilitic nature of the interstitial keratitis and of the other lesions found in all the animals experimented with. Attempts at immunization have also been tried, but so far without satisfactory results. The conclusions of those very interesting questions which are not only of value in the domain of experimental medicine, but also in that of researches for the prophylaxy of this disease, are briefly resumed as follows:

"Syphilis can be inoculated to rabbits. It gives local lesions on the cornea, the testicle and sometimes the skin. It may become generalized. It produces four kinds of keratitis. The living treponema is always present in large quantity in the corneal structures. Very virulent material must be used to succeed in the inoculations. Inoculations in the anterior chamber of the eye does not succeed as well as intra-corneal inoculations. Syphilitic keratitis of rabbits could be used as a means for differential diagnosis in human medicine. Syphilitic virus can be inoculated in rabbits in series and thus material for experimentation be always on hand. Attempts to immunization have failed so far."

There is no doubt that Dr. Roussel has done a good work with these experiments. What remains now is to have them controlled by others.

* * *

Evacuation of Tuberculous Bacilli by Biliary Secretion Through the Intestines.—It is a well-demonstrated fact that tuberculous animals pass in their fæces variable quantity of bacilli. Prof. Calmette and Guerin have undertaken researches to find out if, in an animal organism recently infected through the circulation and carriers of close tuberculous lesions, the bacilli found abundantly and by intermittances in the digesta were not eliminated by the liver and poured in the intestines with the bile. They communicated the results of their researches lately before the Academie des Sciences. They injected in the marginal vein of the ears of seven rabbits one centigramme of bovine bacilli held in fine emulsion. The rabbits were then killed successively 24, 48 hours, 3, 4, 5, 6 and 7 days after the inoculation and the

contents of their gall bladder was taken aseptically, centrifugated and injected under the skin of several guinea pigs. After a lapse of 45 days these were killed and on their post-mortem the examination revealed the presence of a large number of tuberculous lesions. Thus was given the demonstration that the hepatic gland can eliminate bacilli introduced into the circulation and pour them in the intestines with the bile. But bile, having the power of modifying the sero-fatty envelope of bacilli, as a consequence it promotes the absorption by the intestinal mucous membrane.

These facts have a great practical importance, not only because subjects whose biliary secretions are bacilliferous are exposed to auto-reinfection by intestinal resorption, but also because the dejections of subjects, carriers of latent or occult lesions, can become a means of disseminating tuberculosis. Under these conditions, it becomes necessary to have the manure of animals, which have reacted to tuberculin, if it cannot be destroyed, at least that it should be spread only upon lands that are to be plowed and not be allowed to remain on fields used alogether for pastures.

* * *

ANTITETANIC SEROTHERAPY.—The use of antitetanic serotherapy may not be as frequently resorted to in human medicine as it is in veterinary, but yet it is used. However, the results have not been as satisfactory in the first as in the second. In the *Presse Medicale* there was a while ago a review on the subject, where it began by saying that the observations as having been made in veterinary surgery upon the value of this therapy seemed contradictory to those of human practice. In animals, tetanus is most ordinarily fatal and the antitetanic serum has no curative action. But it is a sure preventive if injected before or shortly after the formation of a wound. On the contrary, in man the curative effect is possible and the prevention uncertain.

In relation to the curative action, the contradiction is only in appearance. Indeed, human tetanus may recover spontaneously, says Dr. Lazane, and most of the cases that got well were

cases which would most likely recover without it. And as far as intratracheal, intrarachidian or intravenous injections, the results have been about the same in both medicines.

The preventive value of the serum is quite certain, but not absolute. Tetanus has sometimes followed an injection of serum, but because its effects are short in duration, and because it has been given under special conditions. The action is very limited and consists in a combination with the toxin in the circulation of the blood so as to neutralize it. Its duration being short, its effects pass off quick and, if after eight days, the tetanic wound still exists, the secreted toxin finds no more the element to neutralize it, it is then necessary to inject not only large doses of serum, specially in anfractuous and complicated wounds, but also to renew the injections every eight days.

Various accidents have been observed in using the serum. Erythemas, urticaria, œdematous swellings, such as those that may follow the injection of serum from horses in the organism of man. However, others more serious have been observed with repetitions of the injections; but they are never dangerous.

To resume, preventive serotherapy of lock jaw is good, but it requires to be applied with method and severity. It will not replace the work of the surgeon, but simply tends to neutralize the toxins, while waiting for the realization of complete asepsy of the infecting wound. It seems certainly that for both medicines the general observations and conclusions are the same. Prevention certain! Curative action—?

* * *

THE DOCTORATE FOR VETERINARIANS.—This question has been agitated for some time and the advantages as well as the objections have found quite freely opportunities for discussing it in all our professional journals. While many, perhaps the majority, consider that it would add much to the social standing of veterinarians, some advance specific conditions under which the title should be granted, and among the principal ones are the general reform of the work done by the schools, different arrangement

of the curriculum, longer attendance to the schools, etc. All of these are considered by many as objections which, after all, are of doubtful value. At any rate, it is certain that the subject is of sufficient importance as long as we see it announced as one of those that will be treated at the coming Congress at La Hague. Three of the most eminent men in the profession are reporters, and from their report there can be but one sure certainty to follow, viz: the advisability for the granting of the degree and the proper conditions and requirements under which it can be obtained. With Dr. F. Hutyra, of Budapest, Prof. E. Leclainche, of Toulouse, and Dr. R. Schmalz, of Berlin, the reporters before the Congress, the question will receive the proper attention and final settlement that it deserves.

In the meanwhile it seems as if in some parts of Europe the Doctorate has already gained its cause. Favorably considered in Italy, I believe, two or three institutions in Germany and Austria have accepted the privilege, and at last it seems as if in France the proper authorities are to be approached so as to obtain from them the proper authorization. Here the thing can easily be done as, after all, the schools being under the jurisdiction of the Secretary of Agriculture, he is the one to decide. Since some time a committee has been appointed by the federation (read General Association) of the veterinary societies and syndicates of the country to the effect of arriving at a settlement of the question. This committee is about ready to go before the Secretary of Agriculture, who can at his pleasure grant the request and permit that the diploma issued by the French veterinary schools shall be one making the holder a Doctor.

The move is quite popular and will probably succeed. But the Administration is so slow! I suppose, however, that the time will come when some French graduate who will go and try practice in the States will sign himself X—D. V. S., just as many of our American colleagues do, unless it is D. V. M.

* * *

HORSE-MEAT AGAIN.—Is horse-meat deserving its reputation, considered to the point of view of food and as a therapeutic

ingredient, is the question that Dr. Martel asks in the " Hygiene de la viande et du lait."

According to Pagès, " If one would believe chemical analysis, horse-meat should be healthy and very nutritious, but if, on the contrary, one takes in consideration practical observations, it is neither one nor the other," and further on he adds: "All those that have fed for some time on it have noticed its great digestibility, but also how little it holds on the body; all those that use it continuously are more exposed to digestive troubles of infectious nature than those that eat beef or mutton; in dogs the objections to the use of such meat are still more manifest. Not only is it but little nutritious, but often gives rise to abundant fœtid diarrhœa."

And yet to-day recommended by physicians to be eaten raw, it is boomed as a therapeutic agent of qualities superior to the meat of steers because that, if taken for some time it may give rise sooner or later to an invasion of tæniasis with the tænia saginata, and also superior to mutton, which is too expensive. But at present horse-meat is as dear as any other.

So as to accept the results to be expected from suralimentation, it must also be admitted that meats likely to bring those results be in possession of special conditions also; that they should come from animals of different species, sufficiently fat, in good condition of flesh, healthy, adult and not overworked, and that they should have been the subject of a good sanitary control and properly prepared.

Does horse-meat come generally from such animals? Generally solipids which are killed for that purpose are old, have had a hard life of work, are worn out; and although they, almost without exception, are submitted to the control of the sanitary service, horse-meat will never have the succulency nor the taste or nutritious value, nor the therapeutic properties that are allowed to it in our days, until the time has come when horses will be bred, raised and fattened exclusively for human food, and will be killed in full force and age as is done with cattle.

* * *

BIBLIOGRAPHY: THE COMMON COLICS OF THE HORSE.—Their causes, symptoms, diagnosis and treatment, by H. Caulton Reeks, F. R. C. V. S., although published in London by Bailliere Tindall and Cox, came to my desk in a roundabout way through our American publisher, Alex. Eger, of Chicago. This is the second edition of the work. When a reviewer has seen a book at the time of its issue, his reviewing of a second edition is much simplified. Unfortunately I have not seen the first edition of Common Colics, and I have to rely on the preface given by the author to find out what improvements he has made in his work.

In that preface I read that the book was first published six years ago, that it had a second large reprint rapidly exhausted, and that the second edition was called for. This is a rather good evidence of the quality of the work. Then the writer tells of the numerous letters that he has received from members of the profession, indorsing what he names the "stimulating treatment of intestinal impaction," and calls the attention to an article which he has introduced in the appendix: "The use and abuse of sedatives in the treatment of the equine colics." And then he mentions another addition, perhaps the most important, he says, in Chapter X. on "Sub-acute Obstruction of the Pelvic Flexure of the Colon." He speaks of diagrams which have been inserted with the chapter that treats of surgical anatomy; he describes and illustrates in the chapter on Gastric Tympany, a new stomach tube, and finally mentions one important alteration, dealing with a change of opinion which is fully set out in the appendix.

This tells in the preface of the change that will be found in this second edition. Those who, like me, see the book for the first time, will find that the subject is divided into 18 chapters besides the appendix, which is composed of three parts. The definition of colics, general anatomy of the abdomen, the mode of examination, occupy each one chapter. Etiology fills two, one for predisposing and the other for exciting causes. Gastric troubles (Impaction, Tympany, Rupture) occupy three chapters. The sub-acute obstruction of the double colon two chapters. That

of the single colon and that of the small intestines each one chapter. Flatulent colics, enteritis and superpurgation have each one chapter. The treatment by intestinal irrigations in obstruction of the colon, the surgical treatment in intestinal obstruction, occupy also one chapter. The treatment of colics in young and unbroken animals with the appendix, complete this little book of over 250 pages, where some fair 15 plates are reproduced.

It would not be proper for me to express an opinion as to the quality of common colics of the horse. It has received the written approval of a large number of practitioners, and as it is to them principally that the book is destined to go, these certificates are sufficient. But if I have some impression to give it is this, that I approve very much the effort made by Mr. Reeks. Colic is one of those difficulties which are sometimes so hard to control, where diagnosis is often so doubtful, whose pathology remains so often in darkness that certainly a *special* work can be but a good thing. It would scarcely be possible to make a specialty of this part of our medicine, but one who tries to write a special work on some special forms of colics is deserving well of the profession. I am sure that this is a verdict that will be granted to Mr. Reeks even by those who will not be convinced of his ideas nor approve of his therapeutic methods.

" Common Colics of the Horse " is certainly a good addition to veterinary literature.

* * *

RESTRAINT OF DOMESTIC ANIMALS is a handsomely gotten up work by George R. White, M. D., D. V. S., of Nashville, Tennessee, who is the author, publisher and editor, and which, according to a card that came in the book, " contains over 300 " pages and illustrates and fully describes every known means of " restraint of the horse, ox, dog and hog." And, continues the card, " is by far the best illustrated book ever written in America " on any branch of veterinary science. It is sold by the author " and all veterinary book sellers. Price, $3.75."

One must not, after reading the contents of this card, come to the conclusion that Dr. White claims to have written THE veterinary book by excellence. No. He is a beginner at book writing; he has said to me that he was only an amateur. And certainly he is or he would not have written that card. But he had a great desire to show students and practitioners the importance of that part of veterinary operative surgery. He was so convinced of it that he says that: "Not only does the restraint "problem confront and concern the surgeon alone, but his client "and patient are also directly interested * * *" and again when with right he adds in his preface: "Perfect or even good "surgery is impossible without perfect restraint. The surgeon "is no better than the restraint method which he uses." It is true that there is some exaggeration when he continues: "It is "rare to see a surgeon handle a knife any more skilfully than "he handles his restraint technic. Imperfect restraint means an "imperfect operation."

Evidently with these ideas, the author must have thought it well to compile his work with the conviction that it might be useful. It no doubt will. Any book is in its way.

Dr. White has, however, I think made some errors, and one amongst these is when he says: "I do not care to be held re-"sponsible for the imperfection of many of the restraints and "subjections illustrated and described." Why? How is the student or the practitioner to select? They both have been made more or less acquainted with these modes of restraint, when they were at college, or the course on Operative Surgery of the school they attended was very incomplete, and as, after all, it would be by putting these means to test and practice that they could judge by themselves of their qualities, it seems that not knowing exactly which may be good or which may be bad, hesitating between what he has been shown while at college and what he has read in Restraint, the poor student or unfortunate practitioner will be in a sad quandary as to what to do and if he refers to Dr. White, he is told nothing. Well, leave that as it may.

Restraint is divided into five parts. The two first relating to horses, with one the animal is in the standing position, and in the other in the recumbent. The other three parts are devoted to restraint of the ox, of the dog and of the hog. Each has one chapter. Do not cats bite and scratch? Do they not need restraint also?

In the restraint of solipeds in the standing position, the reader can pass in review all the various forms of twitches, gags, war bridles, halters, leather and rope appliances, etc., with which he may have become acquainted in reading books in surgery, training, horse breaking and taming, etc. Recumbent position speaks to us of hobbles, casting, securing horses with ropes and operating tables. Referring to these last some of the accidents that may occur are mentioned. But are they not as common, if not more, with the mode of casting by hobbles than with the operating table. Good authorities who have used several kinds of tables tell me that they are less; some say almost unknown.

The part 3 applies to cattle and is divided into two chapters for standing and in the recumbent position. For the dog also there are two chapters. Hog has only one.

The illustrations of Restraint are 332 in number. Some are very good, others less so. The majority are correct. A few are not and impossible to apply, if attempted as drawn. Taken altogether, the attempt of Dr. White with all its faults and deficiencies deserves credit. It may not prove as beneficial as the author certainly endeavored to make it. But its perusal will no doubt give the reader a most valuable impression, and is one that every teacher on operative surgery ought to have given to his students, namely: Be thoroughly familiar with your manipulations in restraining an animal, be sure that you will not make a mistake, or commit a blunder as to the one who looks on at you, owner or simply looker-on; it is a fault that may injure your reputation sooner or later.

Students and practitioners must read Restraint, but they must also make themselves perfectly sure of every step required.

Of course this applies principally for those who have to cast with hobbles and secure with ropes, which are certainly the majority. Operating tables with all their superiority are yet, and will remain for a long time, useful only under special conditions, and will not take the place of the old methods except in those conditions.

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SHORT BIBLIOGRAPHIC NOTICES.—Bulletin 119 from the Texas Agricultural Experimental Station resumes the work of Docts. M. Francis and R. P. Marsteller on *Infectious anemia,* with several good illustrations of sick animals:

"Infectious anemia is a very fatal disease of horses and mules characterized by intermittent fever and progressive emaciation without apparent cause.

"The infection occurs in the blood and can be conveyed to other horses and mules by sub-cutaneous or intra-venous injections. We have not been able to convey it to cattle, sheep, goats, pigs or dogs.

"The clinical symptoms greatly resemble those due to trypanosoma and piroplasma, but we have not yet found organisms of this character in the blood.

"Virulent blood which has been filtered through porcelain will reproduce the disease, therefore we think the specific germ belongs to the group of so-called ultra-microscopic organisms.

"The blood of infected horses retains its virulency more than a year after its primary infection.

"Healthy horses have mingled freely with sick ones for months without contracting the disease."

* * *

Bulletin 63 from the Experiment Station of Nevada contains report from Dr. Winfield B. Mack, who is the bacteriologist and veterinarian of the Staff station. He records an interesting case of chronic Hydrocephalus, one of Pervius Urachus, Traumatic

Pericarditis and mentions others of minor importance. This department is of recent organization.

* * *

Finally my attention has been called in April to a plea presented by the Committee on Education of the Pennsylvania State Veterinary Medical Association. The analysis of the plea brings out powerful and important arguments proving the unavoidable obligations of that state, and they apply to any state, to assist veterinary education in providing for the support of a veterinary college in Pennsylvania. The move made by this committee is deserving success and veterinarians all over the country will wish for the State of Pennsylvania to grant that which is asked and which is very small in comparison with the value of the good that would follow.

A. L.

PROTECTION AGAINST THE FRAUDULENT USE OF TUBERCULIN.

It has been frequently stated at veterinary congresses that mallein is a fruitful cause of the *spread* of glanders; and when such statements have been made they have usually been made by those who thoroughly appreciate the value of that agent in the *control* of glanders. Obviously it is only responsible for the *spread of glanders,* through *fraud;* and the same is true of tuberculin. An example of the fraudulent use of tuberculin is narrated in *Horn and Hoof* as follows:

"There appeared in an Eastern exchange not long ago the history of a transaction where a buyer attended the annual sale of one of the leading Shorthorn breeders of America and bought cattle with the understanding that they should be submitted to the tuberculin test and any failing to pass would be retained by the seller. Immediately, or within a few days after the sale.

the cattle bought were tested and given a 'clean bill' by the veterinarian. They were thereupon accepted as sound by the new owner and removed to another state. A few weeks later they were again subjected to the tuberculin test and every one reacted.

"The seller was notified of the results of this last test, but declined to take the cattle and reimburse the purchaser; whereupon, the purchaser not caring to have diseased animals in his herd had them destroyed under veterinary supervision; and upon examination these animals proved to be in the advanced stages of tuberculosis.

"Now what does all this show? Why it shows that the seller of these cattle had been guilty of one of the most flagrant crimes that a cattle vender could be guilty of. It shows that these cattle shortly before sale had been surreptitiously inoculated with tuberculin, the vender knowing full well that should a test be demanded by any purchaser at the time of sale there would be no reaction, thus allowing him to palm off on an unsuspecting public a lot of diseased stock.

"It is well known to those familiar with the uses of tuberculin that after inoculation with the serum an animal though diseased will not react to a second test if applied within several weeks, and this knowledge put the seller of these cattle in a position to defraud his patrons.

"Such a transaction as this puts a serious aspect upon the use of tuberculin as a diagnostic agent; and the only way to prevent its fraudulent use, as we see it, is for the government to take upon itself the sole manufacture of tuberculin and to restrict its use absolutely to government agents. Under existing conditions there is nothing to prevent any person from supplying himself with a syringe and tuberculin and keeping his stock in a constant state of immunity to the test."

The above narration of fact certainly does put a serious aspect upon the use of tuberculin and stimulates thought in those confronted with such conditions to evolve plans to overcome them.

Earnest men everywhere have been giving this matter careful consideration. The editor of *Horn and Hoof* concludes his narration of the fraudulent use of tuberculin by saying that the only way to prevent its fraudulent use, as he sees it, is for the government to take upon itself the sole manufacture of tuberculin and to restrict its use absolutely to government agents. We assume that he refers to the federal government. He says further, that under the existing conditions there is nothing to prevent any person from supplying himself with a syringe and tuberculin and keeping his stock in a constant state of immunity to the test. Unfortunately there is much truth in his conclusions; but we believe we can begin to see a gleam of light ahead and hope by following it to come out into broad daylight where crime is not so easily committed. That gleam of light is in the form of a law that has recently become operative in the State of New York, a copy of which is printed on page 482 of this issue of the REVIEW. This law is the outcome of conditions similar to those related by our esteemed contemporary that have forced themselves upon the Department of Agriculture in the Empire State, where the commissioner, thoroughly convinced of the efficiency of tuberculin in the control and eradication of bovine tuberculosis, realized that he was not getting the results that should accrue from its application through his department by trained veterinarians. Investigation revealed the true reason, viz., fraudulent use of tuberculin.

Section 64a of chapter 588 of the Laws of New York, which is an act to amend the agricultural law, in relation to tuberculin. issuing certificates relative to tuberculin tested cattle and the branding of tuberculous cattle had its birth in the Department of Agriculture of that state, and is the result of a careful study of the adverse conditions and of the requirements to overcome them by the commissioner of agriculture himself; and we commend every veterinarian to study it carefully. It may have its defects; it may have weak points, but we have failed to find any, and believe its emulation by every state would entirely eliminate the dangers referred to, throughout the country.

The value of the tuberculin test has been steadily increasing in popularity among laymen in the Empire State, as stock owners have recognized the singleness of purpose on the part of their commissioner of agriculture, whose one aim has ever been to serve the interests of agriculture. This, and the commissioner's recognition of the value of the veterinarian to agricultural industries, will materially aid in the operation of the new law; and we predict the accomplishment of much good.

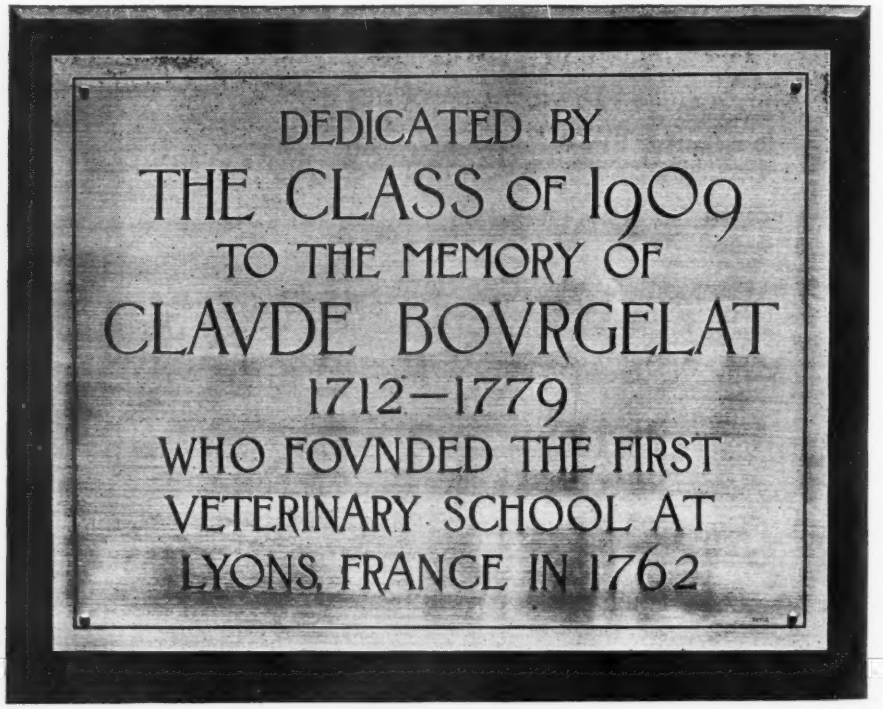
The branding feature in the bill may meet with disapproval by some; but those who honestly desire to abide by the law, and have clean herds, will find no objection to it. Believing that this law will eventually result in benefiting the stock-raising interests of the entire country, we have aimed to bring it to the notice of veterinarians and agriculturists generally.

BOURGELAT'S NAME HONORED AT U. P.

On June 12th the University of Pennsylvania was the recipient of a handsome tablet dedicated to the memory of CLAUDE BOURGELAT, founder of the first veterinary school, at Lyons, France, in 1762, from the senior class of the veterinary department. The exercises incident to the presentation took place in Houston Club. The tablet was presented by Edward A. Cahill, president of the class of 1909, and was received by Prof. Harger, of the veterinary department. Other addresses were made by members of the faculty, which were followed by refreshments and dancing. Through the courtesy of Dr. Cahill, we have received a cut of the tablet, which we here reproduce, also a copy of a brief resume of Bourgelat's life, by Dean Pearson, which follows:

Claude Bourgelat was the real founder of the veterinary schools. Bourgelat was born March 27, 1712, at Lyon, and died January 3, 1779. He sprung from a family of wealth and position and was educated for the law. It is recorded that soon

after he entered upon the practice of his profession he won a case, which subsequent events proved to be unworthy; and so rather than continue as part of a system in which such an injustice could occur, he left the bar and, being guided by his life-long fondness for horses, joined the army as a cavalry officer. He devoted himself earnestly to the study of all hippological subjects, including anatomy and medicine. After he had been appointed Chief of the Army School of Equitation in Lyon,



through the aid of his friend Bertin, he was enabled to lay before the Controleur of Finance a proposal for the establishment of a school in Lyon, the purpose of which should be to develop knowledge of and to teach hippology and also facts in relation to the care, rearing and diseases of all domestic animals. For these purposes, a public grant of 50,000 francs was made August 5, 1761, and permission of the government was given to establish

such a school. Bourgelat was permitted to use for the following purposes the funds so provided: to rent a building to equip a laboratory, farriery, an apothecary, hospital stables, a dissecting room, a lecture hall and a botanic garden, and also for the purchase of utensils and instruments.

The new school was opened January 2, 1762, in a building in Guillotière, a suburb of Lyon. The fame of the founder was such that the first classes were attended not only by students from France, but also by a number of foreigners, including three Danes, three Swedes, several Prussians and Austrians and ten Swiss. A number of the foreign students were sent to Bourgelat's classes at the cost of their respective governments.

The difficulties that confronted Bourgelat in organizing this pioneer school were enormous; there was no veterinary literature of any importance, and there were no men trained to teach veterinary subjects. The first corps of teachers was composed of an abbé, army officers, riding masters and physicians, among whom was the celebrated surgeon Pouteau. Necessarily, the early work of the school was imperfect and, to some extent, was disappointing, still it was of such manifest value, especially in connection with the control of the prevailing animal plagues, that Louis XV. conferred upon the institution the name of "The Royal Veterinary School" and the right to receive all appropriations, funds and bequests for the support of work of the character in which it was engaged. Upon Bourgelat was conferred the title of "Director and Inspector-General of the Veterinary School of Lyon and of all other veterinary schools established, or to be established, in the Kingdom."

The advantages springing from the institution were recognized to be of such importance that Bourgelat was requested by the government to organize a second veterinary school. For this purpose, the Castle of Alfort, on the Seine, near Paris, was purchased December 22, 1765, and the Veterinary School of Alfort was established by Bourgelat, with the help of some of his best pupils from Lyon, in October, 1766. Both of these institutions

have grown steadily from the time of their foundation until the present, and their influence on the agriculture and the national well-being of France are recognized as of immense value.

The success of the French experiment in veterinary education was such that within a few years after its inauguration, veterinary schools were organized by the governments of all the leading countries of Europe, and all of those on the Continent were erected and all are still maintained as public institutions, at State expense. In almost every instance these schools were planned after the French model by men who had studied under Bourgelat at Lyon or Alfort.

For these reasons, we must regard Bourgelat as the father, and France as the mother of veterinary education. Statues of Bourgelat were erected on the grounds of the veterinary schools in Lyon and Alfort, and were dedicated with appropriate public ceremony in the years 1876 and 1879, respectively.

The influence of Bourgelat, through the French Schools, has been potent in shaping the development of veterinary affairs in this country through the work of several of our most distinguished colleagues who received all or an important part of their early professional training at Lyon or Alfort: Huidekoper, Law, Liautard and Salmon.

VARIATION OF ANTITOXIN UNITS IN TETANUS ANTITOXIN.—At the recent Atlantic City meeting of the American Medical Association, Anderson, of the Public Health and Marine Hospital Service, read a paper on "Tetanus Antitoxin," in which he stated that his experiments showed that the tetanus antitoxin prepared for veterinary use contained anywhere from 17 to 25 antitoxin units per cubic centimeter, while similar examinations of tetanus antitoxin prepared for medical use contained from 150 units to 600 or even 700 units per c.c. The above statement may explain to the veterinarian a plausible reason for some of the unsatisfactory results obtained from this product and bespeaks for the same supervision by our Federal Bureau of Animal Industry over biological products used in veterinary medicine as the Marine Hospital Service now has over similar products used in human medicine.

ORIGINAL ARTICLES.

DENTISTRY.

By R. N. Gordon Darby, D. V. M., Fort Plain, N. Y.*

The term "Dentistry" or "Dental Surgery" embraces everything pertaining to diseases of the teeth.

It would seem that this department of our work has been neglected to some extent, especially in our herbivorous animals.

That many of the digestive disorders and general unthriftiness so often found in our domestic animals arise from improper mastication due to disorders, or diseased conditions of the teeth, there can be no doubt.

To-day we must realize more than ever, that any serious disarrangement of the dental system of the soliped must be considered an unsoundness as much as a defect of the eye or any lameness.

Diseases and malformations of these organs are common and frequent, and most careful examination of the teeth is of particular importance in the proper care of animals, young as well as old. In examining the mouth of an animal, it should be secured as the case may demand. The speculum, the sound and the electric lamp should be used together with careful palpation. There is no doubt that an examination can be made without these instruments, but it requires much practice, and the result is apt to be the failure to discover some important defect.

In order to diagnose and handle a case of dental disease properly, we must have a thorough knowledge of the pathology of these parts. Also we should have a good understanding of their development, their anatomical relations and their physiology. A brief consideration of the subject will therefore be desirable.

The first indication of the teeth is the formation of the dental ridge, this is a semi-circular ridge showing on the maxillary and

* Paper read before the Nineteenth Annual Meeting N. Y. S. V. M. S., Utica, N. Y., September 3, 1908.

mandibular arches. Upon the external side of this ridge or the side corresponding with the cheek, small collections of ectodermic cells are formed which correspond in number to the temporary teeth. These groups of cells grow downward, forming the enamel-sac, while from below a group of mesodermic cells, known as the dental papillæ, grow up to meet them. This dental papilla forms the pulp of the tooth and from it the dentine is developed. As it grows upward it becomes vascular and as it comes in contact with the enamel sac it takes its shape, whatever it may be. While this process is being carried on the mesodermic tissue surrounding the dental papilla condenses to form the follicle, which develops until it encloses the tooth. The follicle of the internal layer develops the cementum or crusta petrosa, around the roots of the future tooth, while the external layer forms the alveolar periosteum. The permanent teeth are developed on the internal side of the dental ridge in the same manner, the last three molars (permanent) being developed backward toward the articulation. Before eruption we have then a fold of dentine covered by a fold of enamel, which in turn is covered by the cementum. When erupted and the cap is worn off we have these folds exposed in two layers. Between the teeth the connective tissue becomes first fibrous, and later by the process of ossification forms the alveoli.

Each molar tooth when fully developed presents a wearing surface more or less irregular and inclined from the horizontal; together with four sides, known as the crown. The neck is that portion connecting the crown with the fangs. The fangs are buried in the alveolar cavity of the maxillary bone and are perforated at their extremities for the passage of nerves and vessels into the pulp. The fangs vary in number; the first and last grinder above and below have three; the remaining molars above have four each while those below have but two. The alveolar cavity is lined with alveolo-dental periosteum, which resembles true periosteum, except for its softness. Surrounding the teeth is the mucous membrane of the mouth, which is commonly known

as the gums. This portion of the membrane is very thick and contains no glands.

The wearing surface is of particular interest on account of its susceptibility to pathological conditions. It shows the constituents of the teeth in their irregular layers. The external layer of cement surrounds the external enamel, which in turn covers the dentine. Still inside is another layer of enamel, forming the infundibulum, which is filled by what is known as the internal crusta petrosa. These layers of tooth tissue, varying greatly in density, give the surface that roughness which is necessary to mastication. This crusta petrosa often fails to seal this infundibulum, leaving open the channel to the enamel at the bottom of the infundibulum through which food particles may pass, decompose, dissolve the walls of enamel and dentine and reach the pulp cavity, through which infectious substances may enter. Or, when the cap wears off, the dentinal plates may not have fused, and infection enters at once between them into the pulp.

The incisor teeth are somewhat similar in structure, but differ in shape. The grinders are differently arranged upon the superior and inferior arches of the maxillary bone, the first two grinders on the lower arches being about two inches apart, while the last two are nearly four inches apart. Above, the arches are much wider; the corresponding first molars being three inches apart while the last are from four to four and a half inches apart. From this it is readily seen that while at rest these teeth do not correspond, and that mastication can only take place on one side at a time. The tables of the lower molars show an average difference of about three-eighths of an inch, the external edges being the lower.

The sensory nerve supply of the superior set is derived from branches of the superior maxillary, while branches of the inferior maxillary are given off to supply the teeth of the lower jaw. These trunks are branches of the fifth cranial nerve, which also gives motor branches to some of the muscles. The blood supply of the teeth of the upper jaw is derived from the superior

dental artery, a branch of the internal maxillary. The lower jaw is supplied by the inferior dental artery. These arteries form terminal branches of the internal carotid.

The physiological functions of the teeth are prehension and mastication. The incisor teeth in the soliped aid in the prehension of food. By these we are able to judge with more or less accuracy the age of the horse, as long as the infundibulæ remain unworn. As the animal grows older the angle formed by these teeth becomes more acute, while the wearing surface changes from a rectangular to a triangular form. The teeth of herbivora are being pushed up from below as fast as they wear, and as age comes on the teeth become shallow, while the edge of the jaw becomes sharp. As the compound molars perform the essential functions of mastication, their surface must be rough. This condition is brought about by natural differences in the degree of hardness of the tooth substances. The angle of the molars plays an important part in mastication. Owing to the anatomical arrangement of the jaws in herbivora, they can only chew on one side at a time. Beside the lateral movement of the jaw, there is a rotary movement which plays an important part in the wearing of the teeth.

The symptoms which usually bring the case to us for examination or treatment may often vary, but are generally included in the following: The animal may appear run down, with a dull coat, and is often hide-bound. There will be a history of one-sided driving, pulling on the bit, quidding of food, slow eating. Hay may be chewed for a while, but ejected in quids. Ptyliasm is a very common symptom. Then we have the characteristic disagreeable odor of decayed teeth.

After the diagnosis has been made we must choose our own method of confinement and handling according to the severity of the case. In all severe cases where there is evidence of great pain, general anesthetics should be used. This ncessitates casting or the use of the table, the latter, of course, being preferable. In less severe operations the stocks are a very handy and attain-

able contrivance, and we find that when used together with a capsule of chloral or a hypodermic of morphine they give excellent results, as often we prefer the animal in a standing position. In place of the twitch, a rope running through a stationary pulley, and having a loop in one end to be placed in the mouth can be used to advantage in holding the head elevated. For simple operations the animal need not be secured, but if available the stocks are safer.

Clinically the scope of dental surgery may be included under two main divisions: deformities, including irregularities in development, replacement and wear, and disease.

Supernumerary teeth are found in most of our animals, incisors being most common. Some authorities have noted as many as a double row. The supernumerary molars are less common, although they have been noted, usually behind the third molar or along either side. Often the milk teeth are retained and cause the permanent teeth to become displaced or deformed. These milk teeth lie in front of the permanent teeth when retained, and should be removed, care being taken not to injure the jaw. Supernumerary teeth are the result of the development of more than one germ, or a double follicle. These teeth do no harm unless they grow up into contact with some soft part; then they should be either removed or cut off. In this connection we may also speak of the so-called wolf teeth. These appear to be supernumerary, but are said by some to represent the premolars which have disappeared under civilization and the use of the bit. The ox, we notice also, has this inter-dental space. We find that they do no harm, outside of possibly causing some irritation from contact with the bit. Also we find other pronounced views among our clientage, it being a common belief that they bring on trouble with the eyes; and as a general rule they are removed.

No end of deformities have been met with. The molars have sometimes been found growing horizontally out into the cheek and across the mouth. Too much space between the teeth may cause disease in the molars. These teeth should stand close together to prevent food from entering the inter spaces.

Perhaps the most common deformities are found in the so-called false position or parrot mouth, either the upper or the lower jaw being too long or too short. This comes from irregular development of the jaws, and is known respectively as the undershot (prognathous) or overshot jaws (bradynathous). These cases often prove serious, not only are these animals unable to use their incisors in the prehension of food, but the overlap is often so much as to cause the first or last molar on either side to project into the opposite jaw. These projections must be cut down, care being taken not to open the pulp cavity. The projecting incisor may be reduced by a file or an incisor cutter.

The most common result met with in the wearing of the teeth of herbivora is the sharp mouth. This condition is brought about in the following manner: We have shown the natural angle and relative width of the jaws. From this we may readily see that these sharp angles come from the natural wear, and cannot be said to be pathological. The movement of the jaws and the consistency of the tooth bring out these sharp points of enamel, the dentine being much softer. These points may occur on some individual tooth whose substance seems to be softer than others, or an entire row may become sharp. If they occur on the lower rows, the tongue is said to be liable to laceration; if above, the cheeks. We often see what appear to be scars on the buccal membrane, corresponding to the edges of the upper teeth, but seldom any recent laceration is noticed back of the first or second molar. There may be a question as to the vulnerability of this membrane; that is, by the teeth alone, without the bit or other foreign substance. Horses whose teeth are sharp often drive on one line, or pull into the bit, slobber or quid the food. Ruminants do not often show the sharp points in a line on the inner and outer edges of the molars, as the movements of the jaws are more horizontal. Owners and drivers are often worried as to this condition of the teeth, and insist that the teeth are too sharp, causing the food to pass through the horse whole. As this condition is found in many horses having the best of

teeth it would seem that mastication was perhaps too hasty. We must not overlook the fact that at the time of shedding, the teeth may be irritable and derange mastication. A change of food or a slow feeding manger will often correct these defects when the floats will fail.

That many animals are relieved by the floats and soon gain flesh after this treatment without change of food seems to be true, but great care should be exercised and the extreme points only should be removed, leaving the grinding tables entire. For irregularities in driving, some round the first molars. This treatment of sharp teeth is only temporary, for, as the teeth wear the points reappear; oftener in some animals than in others. In cases where the sharpness appears to be mostly on one side, great care should be taken not to overlook some defect on the opposite side, which may bring about this one-sided wearing. Floating the teeth is often an apology for a more accurate diagnosis. Some claim this condition to be brought on by poorly developed muscles.

In the shear-mouth, most commonly one whole row is affected; both sides may be occasionally, and often only two opposing teeth; usually the fourth molars are cut at a sharp angle so that the teeth come together laterally, the wearing signs approaching the long axis of the teeth. This condition is brought about by failure of the outer side of the one and the inner side of the other to wear. If this continues, it may produce alveolar periostitis. It is found mostly in old horses and is then hard to remedy. If the animal is young and the teeth still solid, the projections may be removed with the cutter.

The wave-formed mouth is usually brought about by unequal durability of the individual teeth. This condition consists generally of a bi-lateral wearing of the molars on each side, tending toward the formation of a plane surface instead of an angular one. It usually starts from the fourth molars, as they are the shortest. The treatment can only consist in leveling the higher points.

The step-shaped mouth is started usually by the loss of a tooth, the space allowing the extended growth of the opposite organ. The molars vary in length. This condition is perhaps the most serious, and is quite often found in young animals whose teeth are found to be softer in quality than natural. The treatment consists of adjusting the individual tooth, if very far advanced the case is usually hopeless. When the teeth are worn down so that only the dentine remains they become smooth. This only occurs in old animals and the teeth are often loose in the sockets. The treatment must necessarily consist in removing all loose teeth and feeding soft foods.

True diseased conditions of the teeth are as a general rule due to the entrance of bacteria into the pulp cavity through external fissures, or by externally penetrating the alveolus. These fissures may be caused by the animal shutting down suddenly on some hard substance. If only a portion of the crown is broken, no material harm is done. More often, however, the fissure extends to the root and through this fissure, food, bacteria and the juices of the mouth may enter. These split-teeth must be removed. This is not a difficult task, especially if it has been of some standing. The inflammation naturally resulting from the entrance of these foreign substances causes sympathetic inflammation of the alveolar periosteum, which will loosen a tooth so that it may often be withdrawn simply by the hand. As a natural result of the extraction of the tooth the corresponding organ in the opposite jaw in time becomes prolonged beyond the level of the wearing edge. We have recently noted a case of an elongated tooth which had penetrated the palatine bone, forming an opening into the nasal cavity through which a finger might be passed. These prolongations take a varied and an interesting course. They should be leveled with the cutters and some authorities recommend that upon the extraction of a tooth the opposing member should be shortened by means of a claw-shaped crown cutter, having its cutting edge dropped at an angle.

The question m y arise as to which is the real cause of a decayed tooth, the one already mentioned or a diseased condition

showing a disintegration of the substances of the tooth? In human dentistry this is called caries, and according to Gould is a chemical decomposition of the tooth.

Accordingly it may be applied to a similar condition of the animal tooth. Just where this process of decay starts is not exactly known. Caries never occurs in those portions of the grinding planes constantly in use. It is known that there is an invasion of micro-organisms, aided by the saliva and other juices, and that these organisms may gradually work away the whole tooth. The greater percentage of these cases must originate externally. The treatment of this condition in the horse must be the extraction of the tooth. As the remaining tooth substance is very brittle, great care is required in its removal. In the dog this condition is quite common, and we understand that it is successfully treated by cleaning and disinfecting the cavities thoroughly and filling them with some permanent substance. Caries in the dog occurs in connection with various systemic diseases; as rachitis, distemper, etc., and often affects the incisors as well as the molars. These affected teeth in the dog always become discolored. We have known of a cavity in the tooth of a horse having been cleansed and packed with gutta-percha, but the later history of this case cannot be found. This treatment has not been successful on account of the inability to remove all evidence of disease. That this will some day become successful in the horse remains a question.

When the pulp cavity of the tooth becomes diseased, inflammation of the alveolar periosteum usually follows. The close relation of the periosteum to the roots of the teeth facilitate the transmission of disease. This condition may often be caused by external injuries to the jaw or gum, or fissures may open between two teeth or along the side of a tooth, admitting some foreign substance, setting up an inflammation which soon invades the whole alveolar cavity. It is very common in the molar, but rarely noted in the incisors. From this condition we may get a variety of results. The tooth may become loosened and drop out, in the

lower jaw the bone may become involved and form a fistula, or in the upper jaw pus may be collected in the facial sinuses. When the jaw is affected there will usually be large swellings of the bony tissue. One form of this disease is characterized by the formation of bony deposits on the root of the teeth, which hinder in their extraction. The treatment in these cases consists only in the extraction or repulsion of the affected member.

Perhaps the safest method of removing these teeth is that of removing a portion of the alveolar plate extending over the tooth. This is done by trephining over the fangs, care being taken of the surrounding tissues, and the soft parts loosened from the bone by passing a scalpel down into the mouth from the edge of the trephined opening. Then with the saw cut through the plate at each edge of the tooth; then apply a large punch to the fang and drive the tooth outward into the mouth. The animal should be placed on the table and anæsthetized. Alveolar periostitis is sometimes found in carnivora. It may attack a number of teeth and acts in connection with deposits of tartar. This tartar works down beside the gum and loosens the teeth. If the tartar be removed at an early period, periostitis may be prevented. When the disease is past prevention, the teeth must be removed, and the alveolæ treated antiseptically.

Dental cysts are quite common in solipeds and may occur in nearly any part of the body. These require more or less skill in removal, according to their locality. Dental tumors are uncommon in animals, unless the exostosis formed in alveolar periostitis may be considered as such. However, these are not true dental tumors.

In the general treatment of dental disorders we must not forget that the greatest comfort we can give our cases and the more humanely we treat them, the more successful will be the result; for the extreme painfulness of these conditions must readily be recognized. The question of diet should be equal perhaps to that of disinfection; soft tempting foods being the rule. Supply grass in place of hay, vegetables, mashes and scalded grain replacing harder food when possible.

There seems to be a growing tendency of late to isolate this branch of our profession. We notice this particularly in the upstart of so-called dental schools, which issue diplomas to their students without any extensive preparation. These men may be found performing in our midst some interesting and disgusting feats. A case or two will suffice to illustrate this. A five-year-old horse, which had been floated by a graduate of one of these schools, had been doing well until its mouth was interfered with. After being floated he could not or would not eat for nearly two weeks. The teeth were found to have a wearing edge of less than one-half inch, nearly one-half the table being filed away. The owner had been persuaded against his will to have his stable examined. All his horses were young and in good condition, but nevertheless all were treated alike. Within a week another interesting case has come under our observation. An animal had been unable to eat properly for nearly a month. A man was sent to examine the animal and found his teeth needed floating, and he floated them. Later, upon examination, a strong piece of a limb was found wedged across the roof of the mouth between the upper fourth molars, causing them to be pushed somewhat out of their normal line.

That this condition of affairs should continue in New York State does not seem right; when our laws say that legally we must qualify for and pass the State Board examination.

The value of our domestic animals, it would seem, does not as yet warrant the specialization of any branch of our profession to the exclusion of all others. On the other hand, we should improve our knowledge of every branch of our work, apply it more conscientiously in our daily practice, and by our attitude toward our profession, strive to create a truer realization of its importance in the popular mind.

A CORRECTION.—In the historical sketch of the Massachusetts V. M. A. published in the June issue of the REVIEW, line 2, page 345, should read, "and did know" instead of "and did not know."

VETERINARY EDUCATION AND THE PUBLIC.*

By D. Arthur Hughes, Ph. D., D. V. M.

I. The Value of Veterinary Knowledge to the Public.—On an occasion like this, when over a hundred men have conferred upon them the degree of Doctor of Comparative Medicine before a mixed assembly of citizens, we may profitably ask ourselves: What is the value of veterinary education to the public? We answer that veterinary education is of inestimable service: first, to the public health; second, in the prevention of extensive losses of property; and third, in the furtherance of agricultural and commercial prosperity.

(*a*) Veterinary Education and its Service to the Public Health.—During the last few weeks the word has been passed around in the newspapers that President Taft proposes to establish a United States Department of Health, with an Executive Secretary of Health, just as now there are Secretaries of War or the Navy. Under these circumstances the present Departments of the Treasury and of Agriculture would be the most affected, in that the Marine Hospital and Public Health Service of the Treasury Department and portions of the work of the Bureau of Chemistry of the Department of Agriculture would suffer cleavage, and would be included under the newly organized Department of Public Health. Such a plan, that of the institution of a departmental public health service, has long been agitated by the American Medical Association. If it comes, even as late as in the present administration, it will be a consummation devoutly to be wished.

Long before the American Medical Association took up in earnest the plea for a federal Department of Public Health, the American Veterinary Medical Association saw the necessity for earnestly endeavoring to bring about the establishment of a ser-

*The "Doctorate Address" given at the Twenty-sixth Annual Commencement, Chicago Veterinary College, April 6, 1909.

vice whereby American Veterinary Medicine could do something to conserve the public health. The American Veterinary Medical Association, as an association, antedated the American Medical Association in its agitation for the federal control of public health matters, at least in so far as they concerned Veterinary Medicine. As early as 1889-1890 the United States Veterinary Medical Association, after warm debate, urged the establishment of a national meat inspection service as a public health measure.

The fundamental law, inaugurating such a system of federal meat inspection, became operative in 1891. Between 1891 and 1906 the federal officers charged with the administration of the original law, and its amendments, suffered many embarrassments, owing to the fact that the congressional appropriations for the inspection were dwindling and often in jeopardy, and because of the limitations of the law, which provided only for the ante mortem and post inspection of the animals or carcasses at the large abattoirs in great live stock centres. But in 1906 the new law, now in operation, made provision for greater protection, sanitarily, for the people, by extending the federal inspection to all food animals or meat food products going into interstate or foreign trade; besides providing for sanitary conditions in handling meat foods, and other features advantageous to the public health. Men educated at veterinary colleges have always done this work, or have had supervision of it, and this will be continued. Veterinary education is, therefore, of important service to the public health.

Equally true it is that:

(*b*) Veterinary Education Renders Public Service in the Prevention of Extensive Losses of Property.

During the past winter the country has been visited by European Foot and Mouth Disease, a scourge which, in 1902, made a similar visitation. In 1902 it was confined to certain sections of New England. This time it spread in Southeast Michigan, Western New York, Eastern Pennsylvania and a small section of

Northern Maryland. The balance sheet has not been made up for determination of the total cost of the contagion to the country; but it will probably reach not far from a million dollars. Just as it is the duty of the medical profession to control or prevent Asiatic cholera, bubonic plague, or yellow fever, should outbreaks occur, so also it is the duty of the veterinary medical profession to prevent or control animal plagues which mayhap visit our shores. Foot and mouth disease is an illustration. However, we have the advantage that we can destroy all animals affected or exposed; we can not only quarantine and disinfect, we can get rid of all infected or suspected animals. In the case of European Foot and Mouth Disease this means probably large quantities of cattle, sheep, swine, together with, perhaps, birds which carry the infection. Thus we can entirely stamp out a dreaded infection in short order, instead of employing the slow, shilly-shallying methods necessary in human medicine. The expense may be larger; but the plague immediately loses its sway, and is shortly no more to be found in the land. There is no necessity for explaining the obvious. Unquestionably this is the work of veterinarians; those, of course, who are adepts in veterinary sanitary science. Hence Veterinary Education is of important service to the public in the prevention of extensive losses of property.

(*c*) THE SERVICE OF VETERINARY MEDICINE TO THE PUBLIC IN THE FURTHERANCE OF AGRICULTURAL AND COMMERCIAL PROSPERITY.—But veterinary education is of far greater service to the country than in the prevention of property losses. For the knowledge which it seeks, and the research which it fosters, touch the very financial foundation upon which we rely for the support of the government. Last year there gathered in Washington, at the request of President Roosevelt, the governors of a majority of the States, together with prominent educators from leading universities. The conference was called for the purpose of considering the problems of the conservation of our national resources. We heard much then of the necessity for opening

up great inland waterways; of the conserving of the national forests; of the preservation of the national domain; of the prevention of vandalism of the national mineral resources. But a very large, if not the largest, share of the wealth of the nation is its wealth in domesticated animals, and upon this animal wealth depends, in very large measure, agricultural and commercial prosperity and national progress. What is the country doing to conserve the national agricultural resources by public benefaction for the support of purely veterinary professional schools? Nothing! Yet veterinary education has, as one of its chief reasons for existence, the necessity that men should be trained to control animal scourges, which, if allowed to go on unresisted, would paralyze our national agriculture. Is not then veterinary education a means for the conservation of our national resources? Certainly veterinary education has serviceability to agricultural and commercial prosperity.

II. SERVICE TO THE PUBLIC AS THE MAIN PURPOSE OF VETERINARY EDUCATION.—Gentlemen of the graduating class, I would not read you a homily to-night. Yet I would remind you that service to the public is the main purpose of modern veterinary education. Service, practical usefulness, is the keynote of medical training.

How, then, may the veterinary medical graduate be of best service to the public? High school boys, after finishing their preparatory education, usually come up to college or university with an inflated notion of their own importance, and a priggish opinion of the vastness of their knowledge. Similarly, the medical graduate is apt to finish his course with the opinion that he has now learned the science and must immediately practice it. Graduates of the college, you may think you have learned very much—you have learned very little. You have only gotten a foundation upon which to rear a superstructure of scientific knowledge. If you do not daily and hourly increase your knowledge of medicine you will become stagnant, fossilized, useless. The people will have no advantage from your work. Nor will

your service be worth a picayune to your community. Stagnancy is perilous to the medical graduate.

It is strange how fond the human mind is of vagaries and how it enjoys making fetishes of them? We veterinarians have one pet delusion which we are forever repeating and in which we bury the truth. What worse confusion could there be in our minds than when we speak of veterinarians in the public service and those in private practice. There is a sense in which we are all in the public service. The success of the private practitioner consists in his usefulness to the public. The full, complete success of veterinarians employed by municipality or State consists in their practical usefulness to the public.

What, then, do we mean by practical usefulness? Not, surely, reliance in a modicum of knowledge acquired by a few weeks' residence in college; but continued acquisition of new knowledge, by reading, observation and experiment, to the end that there may be fitness to solve veterinary problems for the public benefit. The fossilized veterinarian becomes less and less useful; less and less practical. He places his confidence in chimeras. He clings to obsolete notions of bygone days. They are as fantastical as they are antique. They are learned lumber in the garret of a mind which is closed to modern researches. Would you increase your practical usefulness, then let your intellectual horizon expand. Be progressive!

> "A little knowledge is a dangerous thing;
> Drink deep, or take not of that Pierian spring."

The meaning of practical usefulness, as applied to graduates, is found in the intelligent application of the principles of veterinary medicine in the service of the public health; the prevention of losses of property in animals; and the furtherance of agricultural and commercial prosperity, especially in domesticated animals.

But progressiveness of the mind, and consequent increase in practical usefulness to the public, is not all that is required of you. The popular conception of a professional person is not only

a man who knows his science and knows how to apply it for the public benefit; but who so carries himself, or conducts himself as becomes a member of a professional class. There is no snobbishness in setting forth the idea that the conception of a professional man, in the public mind, is that of a man with moral fibre; with force of character; with high ideals of conduct. The public would be served not by learned men without character, but by learned men with character. You will all struggle to be successful in professional life. Failures come from two sources: progressiveness or stagnancy of the mind, stultification of character. Both are equally needed for true, full success—intellect and character. Ladies and gentlemen, I would not bedeck this address with excess of ornament. Nor, as Marcus Tullius Cicero said in one of his orations against Cataline before the Roman Senate, would I "waste the night in words." Let me, however, exhort the graduates to remember, as they leave college for active public service, the words of Thackeray, the great satirist of social misconduct and human folly, when in a happy mood he wrote:

"Who misses or who wins the prize,
Go, lose or conquer as you can;
But if you fail, or if you rise,
Be each, pray God, a gentleman."

CURIOSITY AROUSED.—"Papa, what makes the cheese smell so?"

"The process by which it was cured, I presume."

After some moments of profound cogitation. "Papa, what would it smell like if it hadn't been cured?"

THE DIFFERENCE.—At one time both Montague Matthews and Matthew Montague were members of the British House of Commons. Mr. Matthews was a big, powerful, giant of a man. Mr. Montague was thin and emaciated. The speaker frequently confused the two.

"I can't understand it," said Montague Matthews. "There's as much difference between us as there is between a horse chestnut and a chestnut horse."—(*Everybody's Magazine.*)

PROTECTIVE VACCINATION OF CATTLE AGAINST TUBERCULOSIS.*

Indexed.

By Professor J. F. Heymans.

The inoculation procedure of v. Behring, Koch and Schütz, v. Baumgarten, Lignières, Friedmann, Calmette, Vallée, Arloing, etc., are well known. I may, therefore, pass at once to a description of my method, not wishing to rouse criticism nor to discuss the question of superiority, for in time meditation and experience will reveal the truth.

Whoever talks of vaccination against tuberculosis must also admit the possibility of an acquired immunity, of ultimate cure in spontaneous tuberculosis, that tuberculosis in man and beast is curable, i. e., is not always fatal, no one disputes; that a "super-infection" does not, by far, evoke a tubercle formation, like that developed spontaneously, may be daily demonstrated experimentally. If a healthy animal be put into an infected stall, become infected, and remain there, exposed to the same contagium for years, I and other investigators have often observed on autopsy, only the encapsulated and calcified tubercle lesions of the primary infection, or no lesions at all. In the healthy bovine or human, it suffices for the development of tubercles, that a few bacilli be ingested or inspired; on the other hand a subject with pulmonic lesions may eject day after day enormous quantities of bacilli without developing new tubercles in the healthy portions of the lungs or in the larynx, or in the intestinal tract. These, and many other facts, unquestionably prove that an organism affected with the disease is indubitably more resistant against a new infection or tubercle formation. That, therefore, we find augmented immunity against a new bacillary infection; and that this reaction of the organism may, and does, lead to a perfect encapsulation and cure of the infection present.

* Ueber Tuberkuloseschutzimpfung beim Rinde. (Wien. Klin. Woch., 1908, No. 25.)

The problem of vaccination against tuberculosis (in the case of variola, already solved) must, therefore, attain solution by the use of a vaccinatory tubercle having all the advantages and none of the disadvantages, of a spontaneously developed tuberculosis, and dependent upon such reciprocal action of the organism vaccinated and the vaccine tubercle, that no progressive tuberculous infection develop.

To induce these reciprocating conditions, we have pursued the following technic: We place about 1 mg. of living bacilli to which some powder is added (what quality and quantity of bacilli give the best results, has not yet been ascertained) in a reed sac which is closed, and for safety's sake coated over with collodion, and this sac, filled with bacilli is inserted under the skin of the animal.

That the subcutaneously located sac acts vaccinally is proved by the following data:

If a sac containing 0.5 ccm. of crude tuberculin is allowed to diffuse for twenty-four hours in 5.0 ccm. of physiologic salt solution, and 5.0 ccm. of this be injected into a tuberculous animal, the latter develops a typical reaction. Tuberculin, therefore, diffuses through the intact membrance of the sac.

Into a sac containing 0.5 ccm. of glycerin bouillon, tubercle bacilli were inoculated, and the sac was then placed in a flask holding 50 ccm. of glycerin bouillon; the bacilli gradually develop in the incubator into a compact cylindric mass completely filling the lumen of the sac.

It is now demonstrable that the bouillon in which the sac is suspended possesses the same specific properties as bouillon, upon whose surface a thick film of tubercle bacilli freely forms, i. e., it contains tuberculin, and the bacilli multiply as though all of the bouillon in the flask were at their disposal for nourishment and secretion.

Placed under the skin of the animal, the sac acts precisely as in vitro and in the incubator. A tuberculous animal gives the typical reaction if a sac holding 0.5 ccm. of crude tuberculin be

placed under the skin. On the other hand, if a sac containing bacilli be subcutaneously placed, the bacilli (as shown by microscopic section of the sac) flourish as long as they receive by diffusion the necessary nutriment. As demonstrated in guinea pigs, the bacilli remain alive and draw from the organism of the inoculated animal, their specific foodstuffs as long as the diffused substances are not completely bactericidal; i. e., as long as the organism remains insufficiently immune.

Around the subcutaneously placed sac there forms in the first forty-eight hours an exudate consisting almost entirely of polynuclear cells, and within four to eight days a tough connective tissue capsule develops. In its centre is found the intact sac, which contains bacilli but no cells; whilst external to the sac, no bacilli are microscopically demonstrable. The small inoculation nodule is perfectly similar, then, to a tubercle, except that the bacilli are completely isolated. After six to eight months, the inoculation node calcifies and atrophies in toto; the bacilli disintegrate, degenerate, and perish; so that the whole contents of an inoculation-nodule (after twelve to eighteen months) injected into a guinea pig, produces no tuberculosis.

That an hermetically sealed sac acts as a diffusion-membrane for the specific bacillary products, that it prevents the escape of the contained bacilli, and that the sac itself remains uninjured, is easily demonstrated.

In cattle slaughtered one to four weeks after inoculation, the sac may be extracted from the nodule absolutely intact, and an emulsion of the flesh which surrounded it will not infect guinea pigs. The later fate of the sac, as dialyzer, depends, in general, upon the quality and quantity of the bacilli, and, in particular, upon the digestive and immunizing properties of the inoculated organism. Concerning the details of these processes I am not yet sufficiently informed.

Even as the bacillus-laden sac, suspended in a flask enriches the surrounding bouillon with specific bacillary products, so the contained bacilli impregnate the body of the inoculated animal

with the same specific material. A non-tuberculous animal gives in three or four weeks after inoculation a characteristic tuberculin reaction (as similarly observed by Moussu with clay filters), just like a tuberculous animal, and for the reason that the general action of the inoculation-tubercle is the same as that of an infection-tubercle.

This hypersensitiveness to tuberculin gradually disappears within six to eight months after inoculation; so that healthy vaccinated cattle, which eight to twelve months later do not react to tuberculin, may be considered as free from tuberculosis.

What occurs in the appearance, persistence and disappearance of hypersensitiveness to tuberculin, i. e., what takes place in the organism of the inoculated animal during the process of immunization is a question whose answer demands a knowledge of the mechanism of vaccination, a question which will interest us only after we are agreed as to the existence of an anti-tuberculous vaccination.

Is, then, a sac-inoculated animal vaccinated against an experimental or a spontaneous infection? If, as above, we accept a determinate immunity and cure, in spontaneous tuberculosis as proved, we need hardly add here, that as regards duration and intensity, it is relative only. That cattle inoculated by the sac method are less quickly and less intensely infected, subcutaneously or per os, than control-animals, was determined in three serial experiments upon a total of thirty-six animals; the chief result being that the control-animals became infected whilst the vaccinated escaped infection. The latter were slower in reacting to tuberculin, and when slaughtered showed less extensive lesions.

That this heightened resistance of vaccinated animals to experimental infection suffices to protect them materially against natural infection, is shown by various experimental series carried on in practice. Ten non-reacting cattle, five of which we vaccinated, were put into an infected stable.

When slaughtered five months later, one of the five vaccinated was tuberculous, the other four not; whilst of the five not vaccinated, four were tuberculous and one not. Of eighteen other sound cattle, nine of which were vaccinated, six of the control-animals were tuberculous and three healthy; of the nine vaccinated, two were tuberculous, one was doubtful, and six were healthy (post-mortem).

Of over 4,000 vaccinated healthy cattle (1905-06-07), retuberculinization showed that the majority of them (about 80%) did not react, i. e., they remained free from tuberculosis if we can depend upon the tuberculin reaction in vaccinated animals. Careful autopsy of these animals alone can decide. Among the hitherto autopsied animals (about 500) there were about 150 sound vaccinated, which had not reacted to retuberculinization; tuberculous lesions were found in six. If, therefore, the injection of tuberculin be practical, about a year after vaccination its diagnostic value is as great in the vaccinated as in the unvaccinated.

From the results of these numerous experiments and observations, I feel justified in concluding that animals vaccinated by the sac method are rendered considerably more resistant to both the artificial and the spontaneous infection.

In practice, in all stables, not only the non-reacting animals, but also the already reacting, were vaccinated; and, since in the latter as well as in the former, the bacilli enclosed in the sac diffused slowly but continuously, tuberculin material throughout the tuberculous organism without exciting the least general reaction. The sac method offers the most ideal means of injecting tuberculin as a curative agent in tuberculosis. In combating bovine tuberculosis, the eventual cure or relief of tuberculous animals is a side issue, but it diminishes infectiousness among cattle. This much I am now able to declare, namely that vaccinated tuberculous animals cease in greater number to react to tuberculin than the unvaccinated, and that on autopsy they show marked retrogressive lesions.

As noted in the previously published results, one can by vaccination alone retard infection of healthy cattle living in infected stables, in a rational, practical struggle against the plague. All prophylactic measures, such as isolation, slaughtering of animals openly tuberculous, sterilization of milk, etc., should be practiced as much as possible as adjuvant.

To continue the duration of immunity, vaccination, in a number of stables, should be done half-yearly; in the majority, however, but once a year, each time first vaccinating any new additions. Experiments in biennial vaccination also are not excluded, or the interim may be even longer; but it seems certain that a yearly vaccination of the bovine population more than suffices.

NEW YORK CITY'S WORK HORSE PARADE.—The third annual work horse parade under the auspices of the Women's Auxiliary of the American Society for the Prevention of Cruelty to Animals was held on Memorial Day, May 31, 1909. The officers of this association, Mrs. James Speyer, president; Mrs. Edward R. Wharton, first vice-president; Mrs. Gordon Knox Bell, second vice-president; Miss Marie Winthrop, treasurer, and Mrs. Robert G. Mead, secretary, together with the Executive Committee (which includes many women of note in New York society), and other committees and their friends, occupied the booth on the reviewing stand at the Worth Monument, from which they awarded the prizes and ribbons. Over two thousand horses were in line, including representatives from practically all of the city departments where horses are used, as well as those owned by private individuals and firms. The Police Department horses while on parade kept the avenue open and attracted much attention and called forth enthusiastic admiration. Redmond P. Keresey on "Pompey," the twenty-seven-year-old police horse, came in for his usual large share of it. Both man and horse are retired, the former, who had ridden "Pompey" when "in the service," having purchased him on retirement. From the appearance of the work horses in line this year, it is evident that the object of this society of noble women, which is the betterment of the work horses' condition, is being fully realized.

THE NECESSITY OF PROPER VENTILATION.

By F. D. Holford, D. V. M., Sidney, N. Y.

It is a foregone conclusion that if the dairymen could once be aroused in regard to the importance of fresh air and light in their stables, in a comparatively short time there would be no more dark, poorly ventilated stables and consequently a larger percentage of healthy cows producing a purer quality of milk thereby repaying the dairymen many times for the small outlay of time and expense required to install a proper system of ventilation. My work as Veterinary and Sanitary Inspector brings the importance of this matter under my observation as I visit several dairies daily, and would necessarily be blind indeed not to notice the great difference in the stables that are ventilated and those that are not. I believe that it is up to us veterinarians to educate the dairymen with whom we come in contact in regard to this important matter.

The fact that there are so many poorly ventilated stables is due more to a lack of consideration than to ignorance among the dairymen, as they well know that air which has passed through the lungs is unfit to be again inhaled. In many instances it is rather difficult to get the dairymen interested and to make them see the necessity of a proper system of ventilation which provides an outlet for the foul air and gases to escape as well as an inlet for the pure air to get in. They often contend that their hay chutes answer this purpose. They do not realize that the foul damp air escaping into the upper part of their barns is coming in contact with the fodder and in cold weather is condensing and falling on different parts of the stable and on the cows themselves, which makes them very sensitive to the cold, and when they are turned out to drink they become so chilled that in many cases it causes a shrinkage in their milk.

We are aware that the milch cow is one of the most susceptible animals to foreign influences in her surroundings. Therefore it looks reasonable that in order to gain the greatest benefit from the dairy cow, she should not be subjected to radical changes. I have had dairymen tell me that they had noticed, that after the stable doors had been opened while the cows were out to drink, that in a short time after the cows had returned and the doors closed, the stable was much warmer than it was before the cows went out, which is a good illustration of one of the great benefits to be derived from a change of air in the stable.

How often we see a dairyman keeping his cows in the darkest and the most unsanitary part of his barn, while for his fowls he has provided a home which is well lighted and ventilated, for he is aware that his fowls will not do well unless they receive such treatment. It is a mystery to me why he has not discovered this in regard to his dairy cows, for to do well, they surely need the light and ventilation as much, if not more so, than his fowls.

It is true that to-day there is a large number of tuberculous cows in the country and I believe that the dairymen are largely responsible for this state of affairs; for they have, in most instances, compelled their cows to inhale the same air over and over again; and if they had one cow infected in their dairy, some of the others were sure to become so sooner or later. While pure air is so necessary to life and health and while there is such an abundance of it, and as it does not cost anything, it seems strange that anyone should deprive their animals of a sufficient quantity.

The main treatment for tuberculosis in man to-day is an abundant supply of fresh air and the medical profession not only claim that it is a cure for tuberculosis in its first stages, but that it will to a certain extent prevent the disease. Now, if this is true of the disease in man, why will the same not apply to animals? We know it to be a fact that in conducting a post-mortem examination on tuberculous animals, we find lesions which have

apparently healed and also some which appear to be under the process of healing. I firmly believe that animals slightly infected with this disease could, under proper conditions, become permanently cured.

According to the old saw that "an ounce of preventive is worth a pound of cure," the dairy cow should be kept in such a vigorous state of health that she will be able to throw off any disease germs which might get into her system. One of the most important factors to bring about this physical condition is a proper system of ventilation in the stable; as we should always bear in mind, that the pure air is of as great importance as pure food. In regard to a regular mode of ventilation, we can lay down no hard and fast rules as to the location of the ventilators; as no two stables are constructed on the same plan. In putting in the outlet shafts, they should, preferably, start from behind the cows and from one-third to one-half the distance from the ceiling to the floor, and if possible, should extend upward to a little above the highest point on the roof. If it should extend out through the side of the roof and lower than the ridge-board, there would be danger of getting a downward current of air in the outlet shaft, at times when the wind would be in certain directions. The outlets should be made of wood; as metal ones, in cold weather, cause the moist air to condense and consequently a downward drip. They should also be made of matched lumber, closely bound together by cleats on the outside, leaving the inside surface smooth; so that dust and foreign matter will not have a chance to adhere to it. The principle of putting the shaft on the stable should be the same that we would apply in putting a chimney on a house. In fact it is a chimney on the cow stable; and if we wished to place a stove underneath and insert the stove pipe into the shaft, the stove would draw (so to speak) just as it would in a house. The shaft should not have an elbow at right angles in it, as it has been proven that they do not work so well.

Some dairymen do not like to put the outlet shafts through the roof of their barns, but prefer to run them up into the cupolas. These as a rule work fairly well, providing there are windows or openings in the cupolas. Some prefer to have their outlets start near the floor (King's system) of the stable, but I have found that those starting nearer the ceiling give better satisfaction. In putting in the outlet shafts one must use his own judgment as to the proper size and number as these depend upon the location and tightness of the stable, the number of cubic feet of air space per animal and the number of animals to be kept in the stable. The outlet shaft should not be less than ten inches in diameter. A safe rule to follow in a tight stable where from ten to twenty cows are confined is to allow one inch in diameter of shaft to each cow. For a number of cows between twenty and forty, two outlet shafts of fourteen or fifteen inches are advisable. In large stables two or more outlets give a better circulation of air than one.

The intake pipes should be at least six inches in diameter, and if possible, should be placed in front of the cows, with the inner opening extending toward and within ten inches of the ceiling; so as to prevent any draft upon the cows. The intakes, when possible, should be placed on the opposite side of the stable from the outlet shafts, so as to give a more thorough circulation of air. Two elbows and a length of stove pipe make a satisfactory intake, the two elbows being put together, the openings in opposite directions, one elbow and the length of pipe attached, with the opening pointing downward on the outside of the stable and the other elbow (containing a damper) with the opening pointing upward on the inside of the stable. The pipe and elbows may be made of galvanized iron which is an excellent material for the purpose, or the intake pipes may be made of wood, similar to the metal ones; or, there need be but one elbow, and the six-inch shaft being from three to four feet long on the inside of the stable, opening near the ceiling.

The number of intake pipes depends upon the size of the stable and the number of cows kept therein. An average stable which will accommodate about twenty cows, should have about four intake pipes, and one which will accommodate from thirty to forty cows, should have at least six intake pipes.

The air coming into the stable from the outside through the intake pipes being heavier than the foul moist air of the stable, has a tendency to drop downward, thus displacing the air of the stable, forcing it to escape through the outlet shafts where it finds the least resistance. This causes a constant circulation and change of air in the stable, thereby removing the foul air and gases and making the stable warmer, dryer and certainly more healthy for the animals. The temperature of the stable can be governed by the dampers in the intake pipes.

After the ventilators have been installed, the hay chutes and other openings should be kept closed so as to enable the ventilators to work properly. Some advocate the use of muslin in the windows of the stable. Although this may be better than no ventilation at all, it cannot be compared with the outlet shafts and inake pipes, as it does not cause a proper circulation of air, soon becomes soiled and then tends to exclude the light.

One dairyman informed me that since he had installed a system of ventilation in his stable, that his household had ceased to complain of the strong stable odor in the clothing worn by the men from the stable. I have visited many stables which were properly ventilated, and I have yet to find a dairyman who condemns it; but on the contrary, they are invariably highly pleased and wonder how they ever operated their dairies without ventilation and would not dispense with it under any consideration.

Let us stand by the good old cow,
And try to treat her fair,
By giving her the best of hay from the mow
And plenty of good fresh air.

On to Chicago in September.

RESECTION OF THE FLEXOR PEDIS TENDON FOR THE RELIEF OF NAIL WOUNDS PENETRATING THE NAVICULAR BURSAE.*

By C. H. Case, D. V. M., Akron, O.

The cause of the condition indicating this operation is usually the penetration of a nail or a spike in the depression at the union of the sole and frog, or side of the frog about midway between the point of the frog and the heel.

A nail entering at this point, where a great many nails seem to enter, and passing upward about one and a half inches usually enters the navicular bursæ.

This usually occurs in the heavy draft horse of a sluggish nature and slow gait that will stand considerable pain without evincing much lameness and rarely in the light driver that travel at a rapid gait and are very sensitive to pain.

The posterior foot is the one most always affected, only one out of nine cases presented to us for operation was for the anterior foot. The reason for this is that when the nail is picked up by the anterior foot, the horse will nod and attract the attention of the driver who will stop and remove the nail before it is driven into the bursæ. When the nail enters the posterior foot, of course the horse flinches but does not show the nodding of the head so marked. The driver usually thinks the horse interfered or just a sprain and keeps on driving without examining the foot. After the nail has entered it is quickly driven deeper by the horse pulling and carrying considerable more weight on his posterior limbs. When once the head of the nail is on a level with the bearing surface, the horse will not show much lameness on the pavement, but when driven on a rough or dirt road the lameness increases. The usual history is that the

*Presented to the 26th Annual Meeting of the Ohio State Veterinary Medical Association.

nail is not found until the horse is taken to the barn where he is examined on account of being a little lame and the nail discovered driven into the tendon and bursæ.

If you happen to be called to remove the nail at this time, as is rarely the case, upon withdrawing the nail, considerable hemorrhage will take place, but we never have been able to detect serum, though perhaps it may have been mingled with the blood.

In most cases when you dress the wound within the next twenty-four hours, you will find the horse quite lame, walking on toe and from external appearances, the wound seems to be doing fine with no sign of serum.

This condition may exist from three to ten days, and even longer, the horse continually becoming lamer until you will find on a subsequent dressing a large quantity of serum and pus, and you are certain the nail entered the navicular bursæ.

We attribute this condition to the elasticity of the tendon. The nail having passed through the tendon and when pulled out the tendon retracted and no serum escaped, the inflamatory action that follows serves to keep the wound closed. The serum is infected and depending upon the degree of infection you have the final breaking out of the serum and pus, through the weakest part, the nail wound, sometimes the pus follows up the tendon, and breaks out in the hollow of the heel. One case that we held a post-mortem upon, the pus had followed up the tendon and infected the synovial bursæ of the fetlock joint.

The external symptoms that are presented by the horse depend upon the rapidity of the formation of pus in the synovial bursæ, and are very characteristic.

For the first two or three days you will not be able to detect any difference from other nail wounds, except the horse is quite lame, walking on toe and does not want to be moved. As the pus increases in amount, the appetite decreases and the foot is lifted from the ground and often held up, or only allowing the toe to rest. There is some swelling of limb, tenderness on pressure over the tendon in the hollow of the heel, and pulsation of

the metatarsal or metacarpal arteries. When the pus and serum finally breaks through the wound, or through the tendon in the hollow of the heel, the symptoms are characteristic. The horse is uneasy, paws if of a nervous disposition, often breaks out in a profuse sweat which may last for several hours, refuses all feed and water, is up and down, pulse increased to sixty and even eighty; temperature, 101-103, and repiration rapid. This condition lasts from a few hours to twenty-four or more, the symptoms all the time abating. . The quicker you can operate at this stage, the better is our rule. If the operation is not performed at this time, and the wound treated in the usual way, the granulation of the tissues around the wound partly stops the flow of pus and the result is that the frog and sole become underrun.

Some cases in strong, rugged horses, by soaking the foot in hot antiseptic baths keeping the wound open, will in the course of six to twelve months make a recovery, but are usually left with a hitch which we attribute to the exostosis which forms on the navicular bursæ at the point of injury, together with the thickened tendon to which it has become adhered, causing a shortening of the tendon, and high heel and lameness. When the tendon is resected we do not have this condition to contend with. In some cases, the pus follows up the tendon and breaks out in the hollow of the heel and may affect the bursæ of the fetlock joint.

Another termination is that the nail may have penetrated deeply into the navicular bone and the pus in destroying the bone makes an opening into the joint formed by the navicular bone and the second and third pedal bones. From any of these we may have absorption of the pus and septicemia; with it symptoms of uneasiness, precarious appetite, pulse 70-100 and temperature 102-106, followed by death in a few days.

We recently had such a case presented to us six days after the uneasiness set in, down all night, scarcely able to rise, pulse 90, temperature 106. Was operated upon as a last resort, but

the absorption of pus had been of too long duration and the horse died seven hours afterwards.

The operation is the same given in Dr. Williams' book on surgical operation.

When we discover serum exuding from the nail wound we pare out all the discolored frog and sole and bandage the foot in a warm bichloride pack, usually allowing it to remain in from six to twelve hours or until we can arrange for the operation.

If the patient will eat, it is given a bran mash and water, all hay and straw being kept away, this is done to prepare the horse for the operation and for the use of chloroform if required.

As we have no operating table, and the horse is gone too lame to walk to the hospital, we usually operate at the owner's barn, if a place can be found large enough to cast the animal.

For an anesthetic we give per rectum depending upon the size of the horse, 2 or 3 oz. of chloral hydrate dissolved in three pints to two quarts of water, with one ounce of gummi-arabica. In twenty to thirty minutes the horse will become quite drowsy and sometimes will fall down, but in most cases, where we have plenty of help, we put on the English hobbles in about twenty minutes, and cast the patient with the affected foot on the under side. Four grains of cocaine are then injected over the plantar nerves. The foot affected is removed from the hobbles, and strapped to an extension board six feet long and eight inches wide, extending under the horse and beyond the foot about ten inches. This is made fast with ropes and a six to eight-inch box put under the end of the board to elevate the foot for more convenient operating. A heavy tourniquet is applied midway between the fetlock and hock, the antiseptic pack removed, and everything is ready. With the hoof knife, the sole, bars and frog are pared thin, especially near the frog, all discolored spots being cut away. The foot is thoroughly cleaned with 1-1000 bichloride solution, hands made clean, and with instruments previously boiled, a transverse incision with a scalpel is made across the frog, about one and a half inches from the heel, cutting at a right angle to the tendon, this passes through

the remaining horny, sensitive and fatty frogs, about an inch in depth. With the sage knives and steady tension, with a tenaculum beginning at the incision and cutting towards the point of the frog, this part is removed.

Your nail wound is then plainly visible, and can be probed to ascertain the direction the nail took and also the location of the navicular bursæ. With the finger drawn with steady pressure over the tendon, the navicular bursæ can be felt. Make another transverse incision, across the tendon, directly over the navicular bone, and proceed as before with the sage knives, being very careful when cutting anterior to the navicular bone, not to penetrate the capsular ligament of the navicular pedal joint. This is easily avoided by placing considerable tension on the severed end of the tendon pulling it away from the ligament.

The surface of the navicular bone is curetted and roughened, the bursæ cleansed with bichloride solution, 1-1000, and dusted with iodoform and the wound packed with a gauze previously boiled and dusted with iodoform.

Absorbent cotton saturated with bichloride solution is used to pack the wound and sole beyond the extension of the wall, being held in place with a bandage. Over this dressing, oakum saturated in bichloride solution is placed covering the entire foot up to the fetlock joint, making it about two inches in depth, over this four or five tar bandages are placed which serve to retain the moisture and keep out contamination. A burlap is tied over all, hobbles removed and the horse is allowed to rise when it wishes. Such a dressing, if you are careful to keep everything strictly clean, can be left in place from seven to fourteen days, with very little, if any, formation of pus. If you can leave the bandage in place ten or more days, upon removal, you will find the wound entirely granulated over and showing a very healthy condition. After the operation, usually in twenty-four hours, the horse will put its foot on the ground, restlessness ceases, appetite returns, and in a few days begins to put some weight on the foot.

If pus forms under the bandage in a considerable quantity, the horse will begin to show uneasiness, again, by lifting the foot from the floor, resting no weight upon it, together with a rise in temperature and pulse. By removing the bandage, soaking the foot in hot bichloride, and redressing as you would any nail wound, the symptom will abate and return to normal.

Within six weeks, the horse will be walking with a slight limp, and should have daily exercise in a paddock, or turned out in a pasture wearing a dressing shoe. In two months, they are ready for work, and after starting at a light work, by gradually increasing the size of the load, they are soon able to do their accustomed work.

One horse that was operated on thus, four months afterward pulled 4,800 pounds up a very steep incline, away from one of the shops and to the depot a mile away without showing any effect therefrom. This same horse has been in constant service two and a half years, and is in as good condition as any horse in the barn.

Care should be exercised to draw light loads until the tendon becomes securely attached, and to shoe with a high heel calk for the first two times.

We have operated upon nine cases with seven recoveries and two deaths, one death due because septicemia was far advanced before we were called to see the patient and operated as a last resort. The other because we could not convince the owner to let us operate until he saw the patient was going to die, and wanted the operation performed. Three other cases that we have observed, where no operation was performed resulted in two deaths and one recovery, which has been lame for over one year, and consequently of little value.

We have come to the conclusion that unless an operation is performed, when serum is discovered coming from the wound, that the horse in the majority of cases dies of septicemia and in the few cases where recovery takes place, the horse remains lame ever afterwards, thus we feel justified in advising the operation at once from a humane as well as business standpoint.

MELANOSIS.*

By Prof. Simon J. J. Harger, V. M. D.

Melanosis, or melanism, is a hyperproduction of animal pigment, called *melanin,* which infiltrates the tissues. When localized in agglomerated masses, it constitutes the so-called melanotic tumor or melanoma. These tumors are found in all the domestic species, but most frequently in gray and white horses, especially in those with curly mane and tail. Melanin consists of small granulations, isolated or aggregated into larger masses, varying from a reddish brown to a black color. There are several varieties. One of those in the horse called *hyppomelanin.* Melanin is insoluble in all ordinary media, excepting alkaline solutions, and to a feeble extent, certain organic acids. Its average composition is as follows: Carbon 48 to 58—H 4 to 5—U 75 to 13.5—O 25 to 13—Se to 10 per cent. Fe often (Bard and Hugounenq). The choroid pigment of the eye contains neither S nor Te.

Origin of Melanin.—Much research and speculation have been indulged in upon the origin and the manner of elaboration of the pigment.

The older theories claimed the coloring matter of the blood, as the source (Kolliker and Rindfleisch).

Again, it was an interstitial hemorrhage, the hematin and hematoidin being transformed into melanin (Breschet). By adding blood to an alcoholic solution of mercuric chloride, a pigment precipitate can be obtained having all the properties of melanin (Pouchet).

In generalized melano-sarcoma, Brandt and Pfeiffer have found a diminution of the red blood cells and in a horse and calf Bruckmüller and Bollinger found pigment granules in the blood, giving the latter a dark-brown color. The nature of the

* Read before the Penn. State Veterinary Medical Association, May 2-3, 1909.

pigment was undetermined—whether hematin or melanin—and even if it was the latter it may have been absorbed by blood current or carried there by leucocytes.

The hemogenetic origin of the pigment is not sustained. Its physico-chemic properties, the form of the granulations, the high U and S content, the small per cent. and even absence of Te distinguish melanin from blood pigment. The high U and S content ally it on the other hand to an albuminoid derivative.

To-day we advocate the theory of cellular secretion identical with the origin of the normal pigment of the skin, choroid and pia mater of the sheep. This pigmentation in the normal organism is dominated by the so-called pigment cells or chromatophores situated in the pigmented parts. In the skin, for instance, and especially in dark-colored skins, they form a cellular layer between the rete mucosa and the derm. The chromatophore is of connective tissue (mesoblastic) origin, contains pigment granules and is capable of ameboid-like or migratory movements. Thus, the chameleon shows a rapid succession of colors according as the chromatophores migrate from a superficial to a deep situation in the skin and vice versa, or as these cells are seen throughout thick or a thin layer of epiderm. If a patch of white skin be transplanted upon a negro, the white area becomes black from chromatophoric infiltration.

The chromatophores have the power of secretion pigment granules and liberating them into the surrounding tissues. This punction is controlled by certain nerve centres disease of which may lead to abnormal pigmentation. As with all other secretions, however, the blood furnishes the raw material and the physiologic manner of secretion by the chromatophores is comparable to that of saliva, pancreatic juice, mucus, etc., by their respective glandular cells.

The excessive and misplaced pigmentation of melanosis, therefore, seems to be a perversion of a normal function from causes not well known and by some attributed to trophic changes in the nerve centres that dominate chromatophoric pigment production. It is not difficult to understand abnormal pigmentation

in this way in the skin and subcutis where pigment is normally present, but the explanation of tumors at points where pigment is normally absent is less evident.

Pigment may be transported to distant places by the blood current or as in the embryonic theory of tumors it is more rational to attribute this to developmental defects in the embryo, to misplaced pigment cells or to certain embryonic cells which from unknown causes awaken and assume the functions of the latter. This view is strengthened by the occurrence of congenital melanoma and by the development in man of melanotic growths from pigmented moles in the skin. If melanosis were mere transposition of pigment with age from the general integument to certain localization, all gray horses should be equally affected, which is not the case. Again, we may see it in albinos among equida and in white cattle. In some individuals predisposition to melanotic tumors is more strongly hereditary than in others. Assuming that we are dealing with a perversion of a function congenital and hereditary, it still remains unexplained why this condition is so much more frequent in gray horses and at a time in life when their color changes. If relation is not one of cause and effect, is it one of common cause? Why is it not seen in all gray horses as their color becomes lighter?

Nature.—Melanosis is an infiltration of a tissue with melanin in small granular masses, thin layers and tumors into the interstitial tissue as well as the parenchymatous cells. The lesions are multiple but non-malignant and do not produce cachexia. Dissection of horse cadavers shows that the angularis, rhomboideus, serratus magnus and splenius are the first tissues effected, there is no clinical evidence and no deposits in any other part can be found.

Melanotic tumors are solid, without any special neoformation excepting some connective tissue hyperplasia sometimes slight, which may give the growth a lobulated appearance on section. Peripherally the pigment may infiltrate the surrounding tissue, or, when growth has ceased, reactive inflammation may lead to encapsulation of the tumor. In consequence of connective lique-

faction and superficial ulceration the contents become soft and fluctuating like an abscess.

The histolgenesis of melanosis must not be mistaken with that of other classical malignant or benign tumors, infiltrated with melanotic pigment. Melano-sarcoma, the most malignant of all the sarcomas in man, is quite common in gray horses.

Localization.—No tissue is exempt. The *skin* and subcutis are the most frequent seat and the pigmentation is said to begin in the sweat glands (Blanc): Anus, elbow, forehead, etc.

Muscles.—Withers, mastoido-humeralis, intercostals, pterygoids, diaphragm, around the shoulder and hip-joints.

Viscera.—The spleen is most frequently involved and especially so with melano-sarcoma. Vibbert saw such a spleen that weighed 33 kilos.

Liver.—Disseminated tumors in the centre of the hepatic lobule resembling the "cardiac liver." Also as distinct tumors.

Heart.—Epi-Endo-, myo-cardium, valves. Visnet found a tumor weighing 25 kilos at the base involving the larger vessels.

Lungs, kidneys, thyroid bodies, partoid and mammary glands in aged horses.

Nervous System.—Meninges, cerebral lobes, cerebellum, lateral ventricles, spinal cord, nerve roots.

Bones.—Skull, vertebrae, ribs, pelvis, lateral cartilages.

Ganglia (lymphatic).—Sub-maxillary, bronchial, mediastinal, mesenteric. In the melanotic tumors may be found in the brain, cord, pleura, peritoneum, muscles and viscera. A case of generalized melanosis, though rare, was found in a white steer.

In the calf a form of congenital melanosis affecting many parts of the body, exists and subsequently disappears.

In the *sheep* melanotic tumors are sometimes found.

In the dog it is rare, and the pig is least susceptible. I saw a dog in which the peritoneal surface of the colon was studded with small pigmented nodes.

Symptoms.—These are functional and mechanical. The tumors of the skin are of all sizes. Some soften and discharge a "tarry" liquid when opened. The cavity heals slowly. At

the point of the shoulder they interfere with the collar; on the sides, with the girth; on the anus and vulva, with their functions; on the rectum, impaction and abdominal pain; on the prepuce, phimosis; on the eye, beginning at the caruncula usually, suppuration and destruction of the eye; in the thyroid, cachexia; in the pharynx and œsophagus, dysphagia, jabat and haven; on the vagus and its branches, cardiac palpitation and roaring; in the lungs, dyspnœa and fatal hemorrhage in the liver and heart, hepatic and cardiac disturbances; in the submaxillary glands, suspected glanders; in the parotid gland, cerebral congestion; on large vessels edema of the extremities, and when in the chest or abdomen hydrothorax and ascites; in the brain, spinal cord and peripheral nerves lameness and paralysis in varying degrees. Maury saw radial paralysis from compression of the radial nerve by a tumor in the inside of the arm. Splenic lesions usually have no clinical symptoms. Bouley saw abundant perspiration of the left side of the face, ear, neck and shoulder from compression of the sympathetic. Local perspiration without any apparent cause is occasionally seen in horses and may be explained in this way.

Diagnosis.—This may be based on the location and multiplicity of the tumors, the color and age—usually above 10 years of the horse and use of the trocar. Particles of pigment will adhere to the end of the *canula.* A positive differential diagnosis can only be made with the microscope.

Prognosis.—This varies with the multiplicity and the functional interference of the tumors. With tumors of the viscera and those around the anus and vulva it is often unfavorable, although such horses may for many years render good service. In other locations it may be favorable as far as work is concerned. A true melanotic tumor, especially after it has ceased to grow and become encapsulated will not recur in loco, lead to metastasis nor produce cachexia. Extirpation has given me many good results. The uncertainty lies in whether we are dealing with melanoma or melano-sarcoma. The latter may recur, although perhaps not for some years. From an aged gray

gelding I removed the entire parotid gland the seat of a pigmented growth. The horse showed symptoms of congestion of the brain from pressure on the jugular vein during severe work. The result was very successful, but the growth reappeared after five years. No microscopic diagnosis was made. It probably was melano-sarcoma. Another tumor was removed from the tail of a gray mare. It recurred after several months and the mare had to be destroyed. The microscope revealed spindle-celled melano-sarcoma with some fibro-myomatous change. Another large tumor removed was from the point of the shoulder of a gray gelding. It was encapsulated and easily enucleated as if it were benign, although the copious hemorrhage from the tumor when incised indicated malignancy. It was diagnosed with the microscope as a mixed spindle and round-celled pigmented sarcoma.

Data are insufficient to show the relative percentage of simple melanoma and melano-sarcoma in pigmented tumors of gray horses.

Treatment.—Treatment consists in extirpation according to the rules of surgery. This may be done for cosmetic or for utility purposes. When usefulness is not interferred with, treatment may be deferred. When a tumor is a mechanical impediment to usefulness or much depreciates the animal's value and appearance, the surgeon should not hesitate, especially in the case of isolated and indolent circumscribed tumor of the subcutis. When the eye is affected the entire organ is removed. All pigmented tissue should be removed, although where not possible it may subsequently slough out and the parts cicatrize.

DISCUSSION.—Dr. RECTENWALD—Did Dr. Harger ever see melanosis in a bay horse?

DR. HARGER—I did in a bay horse and in a sorrel.

DR. LOCKETT—Do the suprarenal glands have distribution and pigment in melanosis?

DR. HARGER—I have no knowledge that it is. I know of no investigation upon that point. That is one of the nerve centres that seems to control the formation.

REPORTS OF CASES.

ACUTE LAMINITIS.*

By O. C. Selby, M. D. C., Worthington, Minn.†

In presenting to you this short treatise on Laminitis, I do not profess to have anything new to offer, either on the pathology of the disease or its treatment. The term "Laminitis" is used to indicate a spontaneous and diffuse inflammation of the whole of the sensitive structures of the foot, more particularly the sensitive laminæ.

Usually it occurs in the two front feet, often in all four and occasionally in the hind feet alone.

Etiology.—In dealing with causes of laminitis, we will dispose of those coming under the head of traumatic, by saying that lesions of laminæ thus occurring do not present the same symptoms or run an identical course with the disease I propose describing, and for which I would prefer to reserve the term "Laminitis."

From traumatic causes it goes without saying that there is either a simple congestion or an actual inflammation, localized, or general, of the laminæ of the injured foot. In neither case, however, can the resulting mischief be closely compared with the lesions attending an attack of laminitis proper, a disease which appears to have an almost specific cause, and to run a course peculiarly its own.

The specific cause we have indicated as existing can, in the present state of our knowledge, be only vaguely described as a poisoned state of the blood stream. This, as clinical evidence teaches us, may result from a variety of causes. Among these, by far the most common is that state of circulation induced by excessive feeding with too stimulating or irritating a diet.

It is the laminitis following the feeding of new oats that causes the application to the food the adjective "Irritating."

* Read at Minnesota Meeting at St. Paul, January 13, 1909.

† Now at Redfield, S. D.

Here more often than not the peristaltic action of the bowels is found to be abnormally in evidence, and the excessive use of the diet is accompanied by more or less fluid discharge of the intestinal contents.

Another fruitful cause is a severe and continued inflammatory condition of the system elsewhere, known as "metastatic," and perhaps the most notable example of it is the laminitis following a prolonged case of pneumonia, and the parturient laminitis occurring as a concomitant or septic metritis.

SEMIOLOGY.—Laminitis, in most instances is ushered in by a set of general symptoms such as are premonitory of the invasion of ordinary inflammatory diseases.

But according to "Reeks," even in this early stage there is a symptom which may lead one to an exact diagnosis. The feet are in turn lifted a short distance from the ground, and almost immediately replaced. This movement, "paddling" we may term it, is constant, the animal appearing to obtain ease in no one position for more than a few moments at a time.

Seen but a few hours later, when the swelling caused by the hyperæmia and the outpouring of the inflammatory exudate has led to compression of the sensitive structures within the horny box, the symptoms presented admit of no misreading. The patient now stands as though fixed to the ground. The pulse is hard and frequent, the respirations greatly increased in number, the body wet with a patchy perspiration and the countenance indicative of the most acute suffering. The feet themselves give to the hand a sensation of abnormal heat, and percussion upon them with the hammer is followed by painful attempts at withdrawal.

According as the front feet alone, the hind feet alone, or all four feet are affected, the symptoms will vary.

PATHOLOGICAL ANATOMY.—As with most inflammations of any severity, so with this, we may consider the pathological changes taken place in the foot under three headings, namely: First, the period of congestion, second, the period of exudation; third, the period of separation.

CONGESTION.—In the early stages of laminitis is a state of engorgement of the vessels of the keratogenous apparatus generally, but more particularly of the laminal portion of it. At this stage hemorrhages of the laminal vessels occur.

The escaping fluid infiltrates the surrounding connective tissue, and in many cases destroys the union between the horny and the sensitive laminæ. This change is most noticeable in the region of the toe.

EXUDATION.—The period of exudation marks the outpouring of the inflammatory fluid. This, still further, tends to destroy the union between the sensitive and the horny laminæ; leading finally to their complete separation at the region of the toe; this condition is usually seen when laminitis has been in existence about a week. With the sensitive structures thus detached from the wall, it is evident that very much that formerly held the ospedis in normal position has been destroyed, practically placing the whole body weight upon the sole. Never intended to bear the strain thus imposed it sinks. With the sinking is a corresponding "dropping" of the pedal bone, in fact whole of bony column.

Seeing that the structures above the hoof are still normally adherent to the bones, it follows that they must as the ospedis sinks, be carried with it. As a consequence we get a marked depression at the coronet. Here again, though to a greater extent than that caused by the hemorrhage alone, the ospedis appears to be pushed backwards, the space at the toe between the bone and the horny box being closely filled with a yellow and slightly blood-stained exudate.

The backward displacement of the ospedis may be accounted for in two ways, firstly, the greater vascularity leads to a greater outpouring of inflammatory fluid in the particular position. Here, therefore, loss of adhesion with the wall is greatest, while into the cavity so formed is poured a large quantity of the fluid that is practically incompressible.

Secondly, the manner in which the animal distributes his weight, namely, upon the heels, rather tends to aid the bone's backward movement, for with his feet in this position, tension upon the extensor pedis is relaxed while that upon the flexor pedis perforans is increased.

SUPPURATION.—Suppuration in laminitis is rare, and when found, as a rule, at the sole leading to almost entire separation of the sensitive and horny structures. The pain during this stage is nearly as great as in the foregoing stages, and the only relief obtainable is by giving the pus exit at the sole.

TREATMENT.—The treatment of acute laminitis in its early stage must be based upon the fact that we have to deal with the congested state of the circulatory apparatus of the whole of the keratogenous membrane. This fact was well enough known to the older veterinarians. It is not surprising, therefore, to learn that jugular phlebotomy was at once resorted to as the quickest means of relieving the over-charged vessels of their blood. As a matter of fact, jugular phlebotomy is still advocated by some modern authorities. Mechanically, of course, the removal of a large quantity of blood is bound to result in a lowering of the pressure within the vessels. The effect, however, is but transient. Blood removed in this way is again quickly returned to the vessels so far as its fluid matter is concerned, and the pressure removed for a time is again as great as before. With the other and more vital constituents of the blood stream, namely, the corpuscles, restoration is not so rapid. We have, in fact, a weakened state of the system in which it is probable it will not so successfully combat the adverse conditions the disease may induce.

Other means of combating the congested state of the membranes are local applications such as poultices and hot and cold packs; of these the cold applications seem to be the most effective.

Various methods of applying cold are in vogue, cold packs are probably most in favor. They must, however, be kept cold.

Internal treatment consists in administration of suitable febrifuges, and a purgative is productive of good when the disease has occurred as a result of long standing in the stable, and an overloaded condition of the bowels prevails. Sedatives are also indicated. In this connection I think aconite is chiefly used, although some practitioners have had very good results with hypodermic injections of morphine and atropine.

Regarding the dietetic treatment, during the first stages of the fever a light and easily digested diet should be allowed.

The animals should be kept warmly clothed and the box well ventilated. The patient's comfort should be attended to in providing him with a suitable bed.

Leaving the medicinal and dietetic treatment we may consider other treatments that come more particularly under the head of operative.

There are several methods of operating in vogue at this time; some on the sole, thus allowing the inflammatory exudate to escape from that point, others sometimes give the exudate an escape by making the grooves, known as "Smith's" operation. In this operation the hoof is so grooved as to allow of its expansion, thus relieving pressure on the sensitive structures within it, and incidentally, the inflammatory exudate is given exit. The first groove is cut down the center of the toe from the coronet to the ground surface; the second is made to the right of this, and a third to the left, each following the direction of the horn fibers and each about two inches distant from the first; each groove should be carried completely from the coronet to the ground surface, and each should extend through the substance of the horn until the horny laminæ are reached. This done the under surface of the foot is grooved at the white line in such a manner as to entirely isolate the two pieces of horn from the remainder of the hoof. Expansion of the horny box is thus brought about; while at the same time semi-circular, a groove at the toe is made deep enough to allow free exit for the exudate.

Another similar method is to pare out perhaps a three-inch strip of horn from the coronet to the ground surface, thus relieving practically all the pressure from the region in which the exudate is the most profuse.

Operative measures, though not giving absolute ease, do undoubtedly relieve the more marked expressions of suffering.

PHENOL IN TETANUS.*

By J. N. Gould, M. D. C., Worthington, Minn.

Patient, brown mare, weight 1,000 lbs., 6 years old, owned by Mr. H. Thomas, Worthington.

Received a nail prick Nov. 10, 1908, and showed first symptoms of Tetanus on the 20th. Patient entered hospital Nov. 23, 1908.

The mare still ate and drank well on the 23d, the jaws became locked and patient could swallow with difficulty on the 24th.

* Reported to the Minnesota State Veterinary Medical Association at St. Paul, Minn., January 13, 1909.

The tetanus was general, but more marked in the anterior extremities, head and neck. The patient was placed in sling and kept there throughout the attack; and also during the convalescence, at night, to prevent getting cast. Phenol 50%, Alcohol 25%, Glycerine 25% was used in a mixture of wheat or graham flour and water. This was given once or twice daily, as the case required. A common horse catheter used as a nasal stomach tube, and the solution pumped through it by means of a common pump (injection pump).

On Dec. 6th and 7th, in addition to the phenol, aeth sulph. one ounce, camph. gum, one half ounce, was given.

From Nov. 30th to Dec. 3d, inclusive, the phenol was discontinued as the patient appears to have all it could stand, the flour solution was continued, however, during this period.

Treatment was discontinued on Dec. 16th and the animal was forcibly laid down on the 21st for the first time. From the 21st recovery from the tetanic symptoms was uninterrupted. The patient received the following amounts of phenol:

Nov.	23rd	1	ounce
"	24th	1	"
"	25th	1	"
"	26th	1½	"
"	27th	1½	"
"	28th	2	"
"	29th	3	"
"	30th	0	"
Dec.	1st	0	"
"	2nd	0	"
"	3rd	0	"
"	4th	1	"
"	5th	2	"
"	6th	2	"
"	7th	2	"
"	8th	2	"
"	9th	2	"

From the 10th to the 15th the patient drank about one half ounce daily of the solution.

In all, the animal took twenty-five ounces of phenol in the seventeen days' treatment.

MY EXPERIENCE WITH FOOT AND MOUTH DISEASE.*

By Dr. H. S. Beebe, Albion, N. Y.

The title of my paper may lead you to believe that I have been to Asia, Europe or the Philippine Islands; but such is not the case, however, and my experience with this disease is so limited that I will, in order to make this paper of sufficient length, attempt to give a little general information in regard to the disease.

Foot and mouth disease is also known as aphthous fever, infectious aphtha, epizootic aphtha, and epizootic eczema, and may be defined as a highly contagious fever of an acute specific nature, characterized by eruptions of vesicles, or blisters in the mouth, around the comets of the feet and between the toes. All cloven-footed animals are susceptible, and Dr. Law states that probably no warm-blooded animals are entirely immune from this disease.

The symptoms briefly stated are as follows: a slight fever with impaired appetite, dryness of the muzzle, buccal mucosa and teats. Saliva may dribble from the mouth, and a smacking of the lips and tongue is often noticed. Eruptions the size of a millet seed appear on the dental pad, mucosa of the upper lip, cheeks and palate on the second and third day, and these increase in size, forming watering blisters that burst in from 36 to 48 hours, leaving the mouth very sore. Somewhat similar conditions prevail on the teats and around the comet and in the interdigital space of the feet. The animal may show great tenderness of the feet—very lame. This is especially true of hogs and sheep.

Under favorable conditions the fever subsides and the animal recovers in about fifteen days. The period of incubation varies from 36 hours to six days; two weeks in exceptional cases.

The geographical distribution is interesting. Asia has had the disease for centuries; Europe has had outbreaks in the present and last two centuries; America has had outbreaks in 1870, 1901 and 1908. According to accurate statistics collected by the German Empire, 432,000 head of cattle, 231,000 sheep, 154,000 swine, making in round numbers 817,000 animals, were affected with the disease in that country in 1890. During the

*Read before January meeting, Genesee Valley Vet. Med. Ass'n, at Rochester, N. Y., Jan. 7, 1909.

same year it prevailed in France, Italy, Belgium, Austria, Hungary, Switzerland, Roumania and Bulgaria. In 1883 the losses in England is claimed to have reached $5,000,000.

It can readily be seen how serious would be the losses to the stock owners should this disease get a foothold in the United States. With our immense cattle traffic, with the hay and straw trade, all stock yards would be more or less infected; cars would be infected; thus it would be impossible to receive foreign cattle without having to nurse the animals through the disease.

Another important feature in this connection is the fact that the animal does not become immune after once having the disease. Thus preventive inoculation is not only useless, but dangerous.

On Nov. 13 I received notice from Albany of the existence of this disease in Pennsylvania, and that the State and Federal authorities had traced the entrance of the infection into Pennsylvania from the Buffalo stock yards. The letter stated that no known cases existed in New York State at that time, but as a matter of precaution, the state veterinarians were asked to inspect herds in Western New York that had passed through the Buffalo stock yards some two weeks previous or during the time the yard was supposed to be infected, and report the result to the State Department of Agriculture at Albany. I inspected five herds with negative results, but the sixth herd was billed to C. O. Blake, of Bergen. He had received a carload of 57 young cattle from Buffalo on October 28, and had driven them overland to Brockport, a distance of ten miles, and sold them to farmers, dealers and butchers in the vicinity of the two towns mentioned above. Mr. Blake told me four of the 57 sickened and died before he sold any of them. In company with Blake I inspected about thirty of these cattle. I reported one steer on the farm of F. M. Green as having suspicious symptoms. The following week, in company with Dr. Mark Williams, of Middleport, I again visited the farm of F. M. Green and found the suspected steer in a healthy condition so far as outward symptoms were concerned. I reported that the suspicious symptoms had entirely subsided.

I also inspected the cattle of D. H. Love and George B. Nellis, both of Holley, N. Y. I found nothing suspicious on either farm at the time of my visit. Some time afterward I learned that other inspectors condemned the stock owned by the above Green, Love and Nellis. A very close watch was kept

of the cattle. State and Federal inspectors were sent there nearly every day, and from the fourteenth to the sixteenth day after my visit to the Love farm the animals were condemned and killed.

On December 8, 1908, Dr. McConnell, of Brockport, informed me of the existence of the disease on the farm of Louis Gordon, near Hamlin and in company with him I went to Brockport and saw the affected animals. At the time of my visit there were about 25 cows in the barn and at least 15 showed the characteristic symptoms. Blisters in the mouth in the region of the dental pad, varying in size from a pea to a quarter, appeared. The characteristic smacking of the jaws, the ropy saliva dribbling from the mouth, and the fever, went to make up the characteristic symptoms. The lesions on the feet were not very marked. Some, however, showed slight ulceration between the digits, while a few showed lesions on teats. These cattle did not come from the Blake herd, but were shipped in from St. Lawrence County and appeared to have the disease in three or four days after their arrival. The entire stock, excepting the horses on the farm, were promptly slaughtered and buried and the place disinfected.

I have inspected four or five other herds since, but with negative results.

THROMBOSIS OF POSTERIOR AORTA AND ITS BRANCHES.

By A. D. KNOWLES, D. V. S., Deputy State Veterinarian, Livingston, Montana.

On March 31, 1909, I was called to Belgrade, Montana, to treat an imported Percheron stallion which had been affected for five weeks. History.—The stallion had run loose in a box stall with a paddock opening from it for a period of about eight months and when taken out for exercise, after going some eighty rods, showed lame in off hind limb and with general nervousness. He was blanketed and carefully returned to the stall, where he seemed to recover his normal condition in about thirty minutes. The horse was not taken out again for a week, but developed the same symptoms as before, except that he fell before reaching the stall, but soon regained his feet and seemed to recover as rapidly as before.

On three or four subsequent trials the horse showed the same line of symptoms, with the exceptions of it requiring a shorter distance each time to produce them.

Upon arriving I found a black stallion eight years old in good flesh, weight about eighteen hundred pounds, roaming about in the paddock apparently normal except that the forward stride of both hind legs was shortened and there appeared to be a slight atrophy of both crural groups.

I immediately made a rectal examination and discovered that there was an absence of pulsation in both internal iliacs, and that the aorta just anterior to the quadrification exhibited a throbbing, rebounding pulsation.

Upon further palpation I was enabled to state positively that both internal iliacs were entirely closed by the thrombus and also the aorta to a point which occluded about one-half of the lumen of both external iliacs.

I drew a diagram of the condition for the owner and advised the destruction of the horse.

The horse was taken out and led a short distance, when there was a complete paralysis of both crural groups and the animal fell and continued to have convulsions for some twenty minutes, when he was shot.

In the autopsy I only had time enough to dissect out the aortic quadrification before the arrival of my train, and therefore did not get an opportunity to search for other lesions.

The thrombus is a thoroughly organized fibrinous mass and substantially corresponds with the ante-mortem diagnosis.

ANIMAL ACCIDENTS EXTRAORDINARY.

By GERALD E. GRIFFIN, D. V. S., Veterinarian 3d Field Artillery,* Havana, Cuba.

Bay gelding, fifteen hands high, eight years old, was brought to hospital for examination and anti-tetanic serum treatment. Supposed to have punctured wound of left hind.

Examination by hospital surgeon was negative. The owner being an exacting friend, another examination was attempted half hour later, animal being secured by means of twitch. Far-

* Now in United States.

rier, who held foot in usual manner of blacksmiths, had on a pair of overalls, in the left hip pocket of which he carried farrier's or shoeing knife. The point of which protruded about two inches.

As we were about to apply the foot-searching instrument, the animal brought the leg forward with a jerk, throwing the farrier forward, outward and backward. He, to save himself from an expected kick, endeavored to turn his back to the animal's flank. The leg was recovered and immediately placed beside its fellow. The farrier stepping clear, knife still remaining in pocket.

We were about to direct the elevation of the foot a second time when we noticed blood oozing from an oblique, incised wound immediately in front of left hock. On causing the animal to move we were confronted by the peculiar action and symptoms characteristic of ruptured flexor metatarsi. On further investigation, it was learned that action of anterior digital region was controlled solely by the oblique extensor of the phalanges.

Prognosis unfavorable. Animal (polo type) absolutely refused slings.

Post-mortem examination revealed complete severance of flexor metatarsi above its bifurcation; also anterior extensor of phalanges. The wound evidently was inflicted while flexor and extensor were in extreme tension.

A race horse, in training, was "breezed" for half mile. Rider keeping him on outside of track instead of near rail as is customary. While going at speed both hind legs entered an unobserved, deep hole. This threw the rider forward and to the left, while animal was thrown to left and fell at right angles to his course.

Assisted to his feet and returned to stable with much difficulty.

Purchased six days later by a gentleman of speculative tendencies.

On examination at this time we found an abscess on the external angle right ilium, which was evacuated and dressed. In left gluteal region a considerable enlargement 8 by 9 was observed. This was explored later, but suspected pus not found. Great difficulty in locomotion, especially in backing. Temp. 103.4 F., Resp. 20, Pulse 67.

Rectal exploration revealed depression in left superior pelvic region. Diagnosis fracture of ilium near acetabulum.

Prognosis most unfavorable. Recommended destruction. Speculative owner declined. Patient placed in slings where he rested well for several days. Appetite good, and pulse, respiration and temperature almost normal.

On sixth day, paranoic owner, in our absence, decided on exercising the animal. He did so. This of course terminated our connection with case. On post-mortem examination two days later, discovered comminuted fracture of ilium two inches in front of coxo-femoral articulation, left side; also large pus cavity extending into gluteals. On right side, and almost exactly in same region, discovered another comminuted fracture surrounded with blood extravasation of recent origin.

The latter fracture was probably completed by fall from sling which took place on evening of sixth day.

A ten pound cur, while at play, runs across a field. A fool armed with the foil blade of a " sword cane " lunges at him, and literally runs him through. Animal falls with a howl, while the fool gives expression to his joy in the laugh of his kind.

Weapon entered abdominal cavity three inches from spine and immediately in front of last left rib. The point protruded one and one-half inches on opposite side three and one-half inches from spine and two inches behind last right rib.

Foil was withdrawn. No treatment except local disinfection and dieting. Animal attached himself to hospital and was enjoying himself in five days. He is apparently in good health after nine months. The fool had burnished the blade of his weapon on morning of outrage.

SOMETHING DIFFICULT TO DIAGNOSE.

By L. J. Herring, B. S., D. V. S., Raleigh, N. C.

I am going to record my experiences with a case which has been a puzzle to me, and any one reading this will favor me by answering.

April 15th I was called to see a black gelding, which another veterinarian had been attending, but no seeming good was done. The horse belongs to a transfer man and does hard work most all the time, night work as well as day. The history further is that the animal was noticed to be sore behind, in the region

of the croup, failed to pass feces, made efforts often to pass urine, passing a little each time; the tail was noticed to hang as though dead, no use of it at all. In spite of all this, the animal was active and did not limp, but was incapacitated as to work.

Upon rectal examination, I found the bladder empty, as usual; the rectum as though paralyzed, dilated as large as the pelvic cavity and full of dry hard feces. About the length of my arm I could feel where the intestines were normal and constricted. I could find nothing else abnormal at all. The animal did not walk lame, but upon palpating the muscles anterior to the tail, there was much soreness, no elevated temperature, however.

With this condition of paralysis of the tail and rectum, soreness of muscles, stretching and often making efforts to urinate, passing some urine each time, no lameness, but a somewhat disposition not to want to work. I want some one to offer a diagnosis.

Treatment—I gave this horse a laxative, strychnine, iron and arsenic, and had the rectum emptied three times a day. Had a hot bran pack placed over croup every day, with very little results; some, however. I changed, but kept up the strychnine, and gave sodium salicylate, potassium iodide, and some buchu; had animal exercised, and I got some more evident results; but very slow and unencouraging. I have had the animal put to light work since.

There is some improvement; very much since I began treatment. The animal did not receive a blow anterior to the tail. Now with these few rough remarks, I will look for an answer from some one who cares to suggest a solution of this case.

DYSTOKIA IN THE SOW.*

By Dr. BENNET PORTER, Albert Lea, Minn.

It is not an infrequent thing for the country practioner to be called out to assist in cases of difficult parturition, during farrowing season with sows. And to the writer's mind this is one of the most undesirable pieces of work in the whole veterinary practice, for more reasons than one.

In the first place, it comes in the season of the year when the country veterinarian is very busy, with similar cases in mares and cows.

* Report read before the Minnesota State Veterinary Medical Association, at St. Paul, Minn., January 13, 1909.

And then, again, with the old style instruments, or even with the more improved methods of the present day, the cases are very unsatisfactory, and my experience is and I do not think that I differ materially from the ordinary man in this, in 90 per cent. of these cases we get a dead hog.

And this has annoyed me so much that of late years I have refused to make any expense to my clients, and have refused to go, and have got rid of them by telling them that they could take my instruments and go home and do just as well as I could.

I have studied over this a great deal, and have said to myself many a time that I believe there is a balm for every ill.

And so this continued until the spring of 1906, when one of my clients left word for me to call at his place as soon as possible.

On arriving, I asked him what was his trouble, and he informed me that he had a sow that had been laboring for two days.

I told him in plain words that I was no good, when he exclaimed there must be something to do. So I concluded to try and experiment and told him to take flax seed, make a broiler of flax tea, and take an 8 to 10-foot douche so as to have a little pressure; insert as far as he could and fill the animal as full as he possibly could, allowing the tea to be as warm as she could stand it, then let her rest. So the experiment was put to the test, and notwithstanding she had been laboring for two days, she gave birth to two pigs and came through all right and made a good recovery.

After trying this method several times I have become convinced that it is no more an experiment.

Editors AMERICAN VETERINARY REVIEW:

With the hope of gaining some information from your readers, I am presenting the following case:

A Holstein cow seven years old had calved two weeks previous. Up to this time her health had been perfect, and she was an ideal dairy cow; perfect in build and a great milker. On the 8th of January she was milked and fed as usual. On the morning of the 9th she was found dead. The indications were that she died without the usual death struggle. We were called to hold a post mortem, the opinion being that it was a heart lesion.

On removing the stomach in a careful search for foreign substances, we found nothing but a normal condition. The lungs and heart were also removed, the former being normal, while the latter was not. The muscular wall of the right ventricle appeared flabby and loose; in opening into the ventricle from the auricle down to the base, there was found a well-formed thrombus, practically filling the lumen. Taking hold of its base and pulling gently, it was removed, coming from some distance in the jugular vein and also from the pulmonary artery. It was very tenacious. The same condition existed in the left ventricle, with the exception that the muscular wall was more firm and in appearance normal. The thrombus here extended some distance into the aorta. Can someone give us the primary cause of this condition? Our speculation is that this was a connate condition.

DR. MOYLE AND SON, *Waterford, Wis.*

This calf had curvature of the spine so that the occipital crest was only about six inches from the internal angle of the ileum;

the posterior limbs were twisted so that the calcaneum was anterior, and all flexor tendons contracted.

The uterus was lacerated from side to side so the placenta and fluids were in the abdominal cavity. The cow was in such condition that she was destroyed.

Yours very respectfully,

A. C. GILLIS, Keene, N. H.

SANTA BARBARA, CAL., March 21, 1909.

To the Editors of the AMERICAN VETERINARY REVIEW:

GENTLEMEN—I inclose photo of a case that was presented in my practice.

The small metacarpal appeared normal for the usual length, the distal end suddenly expanded and formed a true articulation with the extra digit which seemed to be complete in all the parts.

We operated upon it, removing most of the enlargement on distal end of metacarpal bone, and the horse has been in active service for the past two years since operation.

Respectfully,

JAMES H. HESTER, V.S.

A CASE OF MALIGNANT OEDEMA: GLANDERS SUSPECTED.

By H. E. MYERS, Carey, Ohio.

One morning the latter part of March I was called to see the case in question: A black gelding four years old weighing about 1,400 pounds. And seemed to be in good condition.

The first thing that attracted my attention was an angry-looking sore about the size of a hen egg upon the fore limb, in the posterior brachial region. The owner explained to me that there has been a wart there, of which some still remained and, that several days previous he had undertaken to tie it off with a cord. The animal had bitten it with its teeth and caused the conditions as they were presented.

SYMPTOMS.—Temperature 103 2/5. Pulse 45. Appetite somewhat impaired. Mucous membrane showed extravasation of blood, slight discharge from the nostrils which was of a light color. The eye gave a haggard expression. Bowels constipated and covered with mucus. Further examination of the wound revealed a slight swelling around the wart which seemed to extend deep into the tissues.

TREATMENT.—Washed and dressed the wound with 1/1,000 Sol. of Corrosive Sublimate, ordered one quart of linseed oil given. Stated to the owner that I would call to see the animal the following morning. On arriving the next morning I found much more than I had anticipated finding.

The limb was now swollen nearly to the knee and from ten to twelve inches above the wound. Temperature 103½, pulse 42, respirations slightly accelerated. Appetite entirely gone, The oil had acted as a gentle laxative. The swelling was extremely painful and several incisions were made which discharged a serous exudate. The next twenty-four hours developed nothing farther than still greater swelling which extended half way up the neck and back as far as the sheath. The animal moved around with difficulty, no weight being placed upon the limb.

As a precautionary measure I had the animal isolated and informed the owner that it looked very much like a case of malignant œdema, but that I was suspicious of acute glanders and that I thought it advisable to use the mallein test.

I suggested counsel on the case, to which the owner consented. I called Dr. G. W. Cliffe, and after making a thorough examination came to the conclusion that my suspicions were well grounded and to make the test at all events. Having ordered mallein from P. D. & Co., which had not yet arrived, I waited until the next afternoon and then made the injection about one cc.

Average temperature up to the time of injection, 103¼; temperature at time of injection, 6 P. M., 103; 12 P. M., 103½;

3 A. M., 104; 6 A. M., 102; 9 A. M., 101. The temperature remained at the point and did not rise again. The wounds were dressed twice a day with a 1/1,000 Sol. of Corrosive Sublimate. The case improved rapidly with no other treatment. The question in my mind, which it is natural to suppose will come to yours, is this: What effect did mallein have upon the case? If any? What? How?

NEW YORK STATE VETERINARY COLLEGE graduated twenty-five men in veterinary medicine on June 17th.

"DENTISTRY" is the title of an article in this issue by Dr. R. M. Gordon Darby, that is unusually meritorious.

IN making your plans, keep September 7, 8, 9 and 10 open for the convention of the AMERICAN VETERINARY MEDICAL ASSOCIATION at CHICAGO.

IN Dr. F. D. Holford's paper on "The Necessity of Proper Ventilation" in this number of the REVIEW, his display of knowledge of stable sanitation is a striking example of the broader education of the modern veterinarian.

RABIES has become quite widespread throughout Northeastern Kansas. Many cases have occurred in and about Hiawatha and Brown County, of which Hiawatha is the county seat, and that county has issued quarantine against dogs running at large, giving the public full authority to kill on sight any dog running loose and not properly muzzled. The enzootic has extended to St. Joseph, Missouri. The mayor of that city has issued a proclamation requiring that all dogs be immediately destroyed which are running at random without muzzle. Nearly two score of people in and about Hiawatha have been bitten by rabid dogs and have gone to the Pasteur Institute for treatment. Twelve or fourteen have also gone to the Institute from St. Joseph. The disease still prevails in and about Kansas City, but the cases are not so numerous as they were a year ago. Not more than twenty cases have been reported since the first of January. The brain and spinal cord of many cases have been sent to the laboratory of the Kansas City Veterinary College for examination because the public have become quite alarmed and want to be fully satisfied in any case where people have been bitten.

ARMY VETERINARY DEPARTMENT.

THE OFFICIAL ARMY VETERINARY BILL RESURRECTED.

In the April issue of the AMERICAN VETERINARY REVIEW, we declared the official Army Veterinary Bill as dead. We did this in good faith, taking the facts as they were before us. The Congress, just ended, had failed to pass this bill as had two of its predecessors; we knew that there was opposition to this bill from some of our own army veterinarians which was considered sufficient to likely prevent its passage; and we knew that a new veterinary bill had suddenly sprung into life and motion which was favored by some influential army officers.

Thus it seemed to most of us that we had to deal with new issues. But the unexpected happened, and we learned through the pages of the Army and Navy Journal that the old Veterinary Bill, in its original form of 1905, has been officially reintroduced into the Senate and House of Representatives, and this with a promptness that was rather startling.

We were for a while without an explanation of this happening. Dr. Griffin, however, gave us in the June issue of the AMERICAN VETERINARY REVIEW the gist of an interview with an officer of the General Staff, which was permitted for publication, and which was fully explanatory of the new move. We do not doubt the sincerity of the utterances of this officer. He, like others of which we know, wish well enough for our progress, but their extreme conservatism and caution is bound to hold us down, more or less, to a level established by untoward precedences in the army, which can lead to nothing more than a continued makeshift of the army veterinary service, if such term can be claimed for it at all.

Yet, it is plain enough at this writing that the enactment of the old Veterinary Bill is all that is contemplated for us. Briefly, it is this or nothing, perhaps with the sanction of some minor changes. Additional strength was given to Dr. Griffin's published interview, by a letter of the Adjutant General of the Army to one of our older veterinarians well experienced in army veterinary legislation, stating that "the Secretary of War directs

that he be advised that the measure submitted by him (Nockolds-Fraser Bill) is not approved, but that Senate Bill 1692, introduced in the Senate April 15, 1909, will receive the approval of the War Department" (old bill). Finally, we are in receipt of a private letter giving us practically the same information.

Alea facta est, said the old Romans, and we might just as well benefit by their promptness of decision at a changed condition. Let us not lose all hope that we may yet persuade our military authorities that the reinsertion of the term "grade" and the promotion to a first lieutenancy after five years of service, will make this much disputed, old Veterinary Bill more palatable to its enemies, and will be, all round, more in accord with the veterinary progress in the army for which we are making a just and commendable fight in the face of no small obstacles.

RETIREMENT OF ARMY VETERINARIANS.

The Army and Navy Journal of May 29 contains the following note:

> "Veterinarian John Tempany, 9th Cavalry, has asked "that the question of his eligibility for retirement as a "commissioned officer be submitted to the Attorney Gen- "eral. The Judge Advocate General, in an opinion sub- "mitted to the Adjutant General, holds that neither the "laws regulating the retirement of commissioned officers "nor those of enlisted men, are applicable to the veterina- "rians, and that it would seem that no form of executive "relief can be applied in the case of Veterinarian Tem- "pany, whose retirement, General Davis holds, can only "be accomplished in the operation of appropriate legisla- "tion. It is therefore not recommended that the matter "be referred to the Attorney General, but that it be sub- "mitted to Congress with the recommendation that the "retirement of veterinarians be made the subject of "statutory regulation," etc.

REMARKS.—It has been the belief of several army veterinarians, for some years past, that the Attorney General is likely to decide the question of retirement in their favor. Following the argument of this high judicial official in similar cases put before

him, it can hardly be otherwise. Dr. Tempany, 9th Cavalry, who is eligible for retirement on account of age, has now attempted to reach the Attorney General through military channels, but from the above note of the Army Journal quoted, it appears that the War Department may abide by the decision of the Judge Advocate of the Army, whose decision is unfavorable.

It is very important at the present time that this question be pressed. There are officers and veterinarians who think that a favorable decision of the Attorney General may show the present Veterinary Bill before Congress as quite unnecessary, as it would practically settle most of the points for which legislation is now sought, because "rank" is not a part of that bill.

It may be well to mention at this time that the Attorney General has been approached once before on the status of retirement of army veterinarians. This was done by the late Dr. Tracy, 8th Cavalry, in 1893 or 1894, and if we remember correctly, was by private correspondence through an influential civilian. At that time the Attorney General was of the opinion that the "veterinary surgeons, having the rank of sergeant-majors conferred upon them by Act of Congress of March 4, 1863, were entitled to retirement as enlisted men, notwithstanding the decision of the War Department that they were civilians." The matter was dropped at that time, because there were no veterinarians eligible for retirement and the "enlisted men clause" was not pleasing to the incumbents, although they agreed that it was a fair and square opinion.

Since then, by the Acts of Congress of March 2, 1899, and February 2, 1901, the status of the veterinarian has been materially changed. It came all through questions of pay, and the decisions were rendered by the Comptroller of the Treasury, Circular No. 47, Headquarters of the Army, Washington, D. C., December 8, 1900; and Circular No. 29. Headquarters of the Army, Washington, August 28, 1901, started the ball rolling and contained the decisions: "II. First-class veterinarians are officers and entitled to 10 per cent. increase of pay, etc.," and "XIV. Veterinarians authorized under Act of February 2, 1901, are entitled to increased pay for length of service." These decisions had a train of other decisions as a seeming consequence, and the idea that the veterinarian was a "civilian" which had been tenaciously adhered to by the military authorities up to that date, had to be dropped and has been almost entirely forgotten, but a little of it seems to have survived when it comes to the question of retirement of army veterinarians.

Quite recently, now, the Attorney General has decided that paymaster's clerks of the navy and mates of the navy are officers and entitled to retirement pay of the next higher grade. As far as we were able to learn, this decision was based on the Constitution. It argues that "By Article II., section 2, clause 2 of "the Constitution, officers of the United States can be appointed "legally (1) by he President, by and with the advice and consent "of the Senate; (2) by the President alone; (3) by the courts "of law; (4) by the heads of departments. Commissioned offi- "cers of the navy are appointed by the first method, warrant "officers in accordance with the second, and mates in accordance "with the fourth. *All are alike officers of the United States.*"

It seems reasonably sure that according to this decision the army veterinarian has a just claim coming that may clear up his whole present status and the question of retirement as well. It is not only our privilege but our duty to press this claim by employing proper legal talent, so that we may know where we stand before the present Veterinary Bill is taken up for consideration by the military committees of the Senate and House of Representatives. Let us stand together bravely and act promptly and vigorously. It is a matter that should be taken up by the Committee on Legislation of the American Veterinary Medical Association and worthy of liberal financial support, for it may save us from long-drawn-out and untoward veterinary legislation, in fact it may directly lead to an entirely new and better veterinary bill.

ARMY PERSONALS.

It is with regret that we chronicle the resignation from the army of Dr. John H. Oesterhaus, 7th Cavalry. As this was entirely unexpected news, we inquired for the reasons, and in his reply the doctor admits that "he is, indeed, sorry that the conditions of the veterinary service are such that he felt it his duty to resign, for he liked the army, army life, the army people and the professional work, but not the outlook for the future." By this resignation, we lose one of our best recent appointees. Favored by nature with manly appearance, of liberal education and polished manners, a good horseman, Dr. Oesterhaus has all the attributes that specially qualify a young veterinarian for

the army service. We can ill-afford to lose him and cannot suppress the hope that when proper legislation will have mended veterinary matters more favorable, we shall see him embracing the army career once more and for good.

Dr. Henry W. Peter, 14th Cavalry, has been granted a leave for four months to take effect July 1. We wish the doctor a well-earned rest and recreation after several years of hard, routine work in the States and the Philippine Islands.

Dr. Gerald E. Griffin, 3d Field Artillery, after a somewhat mysterious cross-country travelling which caused letters addressed to him to be returned with the remark "addressee unknown," has finally found a domicile at Fort Leavenworth, Kansas. Supposedly he takes the place as veterinary instructor at the School of the Line at that Post, and we extend to this old and well-tried colleague our pleasure and satisfaction at his new professional calling in the army.

O. S.

AT THE BUTCHER'S.—"Is the meat dear?"
"No, ma'm; sheep!"—(*Philadelphia Ledger.*)

EXCELLENT WORK OF THE AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS IN GREATER NEW YORK. —The American Society for the Prevention of Cruelty to Animals has done good work in the provision of "watering stations" in that great metropolis, where horses suffer so much from the heat during mid-summer for the past few years, by providing pails, hose, sponges, etc., at many points where hydrant attachment can be procured. This is a wonderful help, as fountains cannot be obtained in profusion, and thousands of horses suffer and die while waiting for them. But in addition to these temporary "watering stations," the A. S. P. C. A. has arranged many permanent ones. It is now arranging to place a granite trough in St. Gabriel's Park (First avenue, between Thirty-fifth and Thirty-sixth streets), where it is badly needed. The money for this trough was given to the society by Miss Edith G. Bowdoin. The late Mrs. Marguerite Carter bequeathed to the society funds to be used for the erection of a fountain trough at McKinley Square, junction of Clinton and Boston avenues and 169th street (Bronx), which has become an accomplished fact. The fountain bears the inscription, "The Margery Daw Drinking Fountain." No better charitable object can be contemplated.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

SPRAIN OF THE TRICEPS EXTENSOR BRACHII (DROPPED ELBOW) [*Henry Taylor, F. R. C. V. S.*].—There are two theories explaining the cause of dropped elbow: One is radial paralysis, the other sprain of the muscles. While fracture of the first rib may accompany the first, as demonstrated by many cases, the present article relates to the other. A two-year-old colt was being castrated. He had not been out of the stable for some time, and his muscles were not in a fit condition. Wild, he struggled very much while being cast and got his near fore foot caught in the halter. As a result, there was an undue stretching of the triceps and when, after the operation was done, he was unable to bear weight on the leg, and the elbow dropped. "When the foot was placed level with the other one, the knee pressed back and held there by pressure from the front he could stand, but directly the pressure was taken off and he attempted to move, the leg collapsed under him." He was with difficulty taken to his box and left without treatment. In a few days he improved, stood naturally, but had wasting of the triceps. In ten days he walked fairly. The muscles of the hind quarters had also wasted and he had to be helped several times to get up.—(*Veter. Record.*)

FATAL RESULTS FROM THE USE OF STRYCHNINE [*E. B. Reynolds*].—Referring to a case published recently, the author records three similar accidents to the one mentioned. Every one of them were put under the strychnine treatment a few days after an attack of parturient apoplexy, because of the inability of the animals to get up. For the first, the dose was a little over two grains and the other two received only one and a quarter grains at a dose. After taking the second dose, the first had frothing at the mouth and twitchings all over. She had spasms after an hour from the time she took the second dose. She died three hours later. The second cow behaved in the same manner, show-

ing the effects of the drug half an hour after the second dose. She died six hours after. The third cow showed spasms after the second dose also, and although chloral hydrate and morphia were administered, she died in two hours.

Not thinking that the dose was too strong, the death of the first cow was attributed to a peculiar idiosyncrasy. The death of the second under the circumstances looked strange and idiosyncrasy was doubtful. With the third case the idea of such was evidently an error and had nothing to do with the death. The writer asks for information.—(*Veter. Record.*)

FOOT-SCAB MITE OF SHEEP (SYMBIOTES COMMONIS, VAR. OVIS. RAILLET) [*T. W. Cave, F. R. C. V. S.*].—A flock of yearling Kent lambs had a number of lame ones, which the shepherd said "had insects in their feet." Covering the skin between the claws there were pinkish gray masses, which being scraped off and examined under a low objective were composed of collections of living acari. The flock had been folded during the winter and the fold bedded with thick hay and straw. At first it was thought that the acari might have invaded the interdigital space from the bedding and that they were not truly parasitic, but as mites in all stages of growth were found, and as they were frequently seen in copulation, it was evident that they were occupying their natural habitat and were actual parasites. All the lame animals had them. The parasites did not show any tendency to invade other parts of the body but the skin of the interdigital space, being attached on the short wool growing on it. A 2% solution of lysol destroyed them in the lambs that were treated.—(*Journ. of Comp. Patho. and Therap.*)

REMARKABLE WOOL BALLS FOUND IN THE RUMEN OF A SHEEP [*L. F. Gooch, F. R. C. V. S.*].—They were found in the rumen of a fat healthy yearling sheep. Ten in number, the largest had a diameter of 48 mm. and the smallest one of 43 mm. The biggest weighed 24 grammes and a half. When divided through the center, the cut surface had the appearance of fine felt and the mass was composed of fibres of wool. The fibres were considerably altered by macerating in the rumen. On the outer surface, the balls had a thin layer of mineral matter, presumably lime salts. They all were about the same size and shape and had a rather uniform appearance.—(*Ibidem.*)

EVENTRATION OF THE SMALL INTESTINES OF A MARE, RESULTING FROM AN INJURY IN THE HUNTING FIELD [*Thomas Wilson, F. R. C. V. S.*].—Well bred mare, rising 6, good hunt-

ress, while jumping a fence received a deep penetrating wound of the abdomen, close to the left external abdominal ring. The rider was not aware of the condition of the mare until told that the bowel of the mare was protruding through the wound. What distance the mare had traveled in that condition could not be ascertained. She was led to the nearest farm and placed in a box with a man holding her to prevent her lying, while another was fomenting the bowel with warm carbolic solution. There was between 2 and 3 feet of small intestine protruding through a wound about two inches in diameter. The intestine was much congested and showed signs of first stage of strangulation. The protruding bowel was protected with a piece of cloth saturated in carbolic solution, and the animal cast on sloping ground. After careful disinfection of hands and arms, and examination of the wound, the thorough cleaning of the wound and intestines was made with chinosol, 1 part in 5. As the wound was too small to allow the return of the bowel in the abdomen, it was enlarged, and after careful manipulations it was reduced. The wound was again swabbed with solution of chinosol for about 20 minutes. The musculature of the abdomen was sutured with silk aseptized by soaking in chinosol. The skin was sown up and the mare allowed to rise. She was placed in a stall with her hind quarters raised. The temperature never raised above 105° F. The pulse was strong and the appetite good. Laxative diet, a little quinine and stimulants were the after treatment. The animal was not allowed to lie down until after six days. The wound healed rapidly with very little suppuration and the mare went hunting at the end of eight weeks.—(*Veter. Journ.*)

Some Cases of Azoturia [*Dr. F. J. Braund*].—The writer says that by treating such cases with iodide of potassium, the mortality reported by some authors can be considerably reduced. He has given up the use of slings. Does not believe in bleeding; he has tried veterinary albumone, but is not in favor of it. He intends to give a fair trial to adrenalin. He will only mention some of the cases where he has obtained good and complete recovery. Of course there are cases which do not do well, even with the iodide treatment, but any how, with it in his hands he does not dread the disease as formerly and the mortality he has seen reduced to 5% out of 50 cases. And then he relates in a concise manner four cases which ended with satisfactory results in 4, 4, 7 and 10 days. The main drug resorted to being the iodide of potassium. Not neglecting, however, the use of the

catheter, physostigmine, mustard and blister, strychnia, etc. He mentions also an animal that had three attacks and was still alive. (*Veter Journ.*)

TREATMENT OF DISTEMPER [*John A. Raleigh*].—The author has experimented with various drugs, those recommended in text books and others, but it was not until acetozone was used by him that he became satisfied with the results. For the treatment of distemper to be satisfactory the writer esteems it highly essential that the patient should be disturbed as little as possible and it was this important fact that led him to obtain from acetozone considerably better results than hitherto, for it is easily and readily administered with the patient's nourishment. After giving 4 to 6 grains of calomel, acetozone (10 grains to a pint of water) is given mixed in condensed milk or sterilized cream. The dog generally laps it up. It may be necessary to drench him once or twice before he gets used to taking it alone. For the average sized pup 5 ounces repeated four times a day is the dose. After one or two doses the dog seems to get relief. On the second day of the treatment there is improvement and the animal can take food. Acetozone must be kept up until convalescence is perfect. With the writer the mortality has dropped from 40 to 10%.—(*Ibidem.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

OVER-STRETCHING OF THE CORACO-RADIALIS IN HORSES [*Prof. P. Leblanc*].—Muscular lesions of this kind are often easily detected, but there may be some instances where the injury is not much accused, more difficult to detect, and may be overlooked, if the examination of the leg is not made very minutely. Here is an example:

A saddle horse becomes suddenly lame on the off fore-leg, after having the shoe of the right foot torn off with the shoe of the hind foot. The horse is lame on three legs. While at rest he stands plumb on both fore legs; when starting to walk, the lameness is much marked at first and improves some while the horse goes straight ahead, but it gets worse again in turning.

On examination there is no change in the shape of the leg, the articulations, tendons, bones, etc., are normal. Exploring the arm, a very painful spot is found on the coraco-radialis; the muscle is hard, in condition of contraction, and when pressed upon it gives rise to a manifestation of great pain. The lesion exists on this muscle alone. A stimulating friction of equal parts of blister and bi-iodide of mercury ointment was applied. It took three weeks for the horse to get well.—(*Journ. de Zootech.*)

INTRA-SCROTAL CHAMPIGNON [*M. M. Defosse and Perrot*].—A four-year-old stallion had been castrated and was sold before the wound had closed. On the right side cicatrization took place, but on the left discharge of pus continued. The sheath was swollen. After a little time, the general condition felt the effects and the animal had to be thrown to examine the exact aspect of a fistulous tract which was present in the wound. The end of the cord was found swollen, bleeding, and the seat of a well-developed funiculitis. With a first free incision the fistula was enlarged, but a second perpendicular to it was necessary so as to allow the introduction of the hand way up in the inguinal canal and isolate the cord from the surrounding tissues. This step was very difficult on account of intimate adhesions. Finally it was made loose, and the ecraseur was applied as high up as possible above the tumor, which was as big as the two fists and hanging at the end of the cord, which had the size of the arm of a man. After separating the mass with the ecraseur, it was found that the instrument had been applied too low, or had slipped down, the chain not being tight enough. The crushing had to be done again higher up. And even then, some of the diseased cord could not be removed. After two hours of difficult work the operation was concluded with little hemorrhage. There was no complication. The end of the cord sloughed away in due time and recovery followed with only injections of antiseptic solutions as after treatment.—(*Ibidem.*)

NEOPLASM OF THE OVARY IN A HEN WITH MULTIPLE GENERALIZATION [*Mr. Roquet*].—The subject of this observation was a one-year-old hen. She has always been delicate, although had abundant food and much care. A few days before death, she began to lose flesh rapidly. Passing the hand over her body, under the feathers, near the wings, on the internal face of the thighs, nodules elevated and of various forms and sizes are felt. They are movable with the surrounding skin. After pull-

ing the feathers off, they appear as big as peas, hemispherical, with a greyish or yellow-greyish color when cut through. Near the wings they are in groups of three or four and have a reddish ulcerated surface.

Post Mortem.—No adipose tissue anywhere. Muscles atrophied, pale and yellow in color. On opening the abdomen on the left side, instead of the ovary, there is a large tumor, flattened with encephaloid aspect, light grey-yellowish in coloration and soft in consistency. It is mammillated. The liver, big and soft, presents several nodules of various sizes. Spleen appears enlarged and softer than usual. The two kidneys are involved in the neoplastic substance. They are large, very soft, mammillated and of greyish coloration. Lesions of similar nature are also found in the digestive canal, in the lymphatic glands of the neck and chest. Heart and lungs and pleura presented nothing. Examined with the microscope, the structure of the lesions proved to be the same in all. It was a lymphosarcoma.—(*Journ. de Zootechn.*)

Oesophagotomy in a Cat [*Mr. Ducorneau*].—Pussy is said to have swallowed a bone. Careful examination reveals on the course of the œsophagus a tumor as big as a ball. It is a foreign body of some kind. Catheterism of the canal is performed. The probang enters and slides well in the œsophagus, but when it reaches the obstruction it is found impossible to displace it. Oesophagotomy is necessary. The animal is secured, the parts well disinfected, and through an incision made on a level with the enlargement, the œsophagus is exposed. It is punctured, carefully incised and the foreign body, a sheep caudal vertebræ, is extracted. Two stitches closed the œsophagus after minute disinfection, and a dressing of iodoform ether applied. The cutaneous wound was protected with a simple dressing. Six days of milk diet, then eggs and milk for four days and on the eleventh day meat was allowed. Complete recovery in 15 days.—(*Bullet. de la Soc. Cent.*)

Perforation of the Vagina During the Act of Coit [*Mr. R. Parent*].—The writer says that it being an extremely rare accident, he thought it worth recording. It is the case of a heifer, 18 months old, which has always been in perfect health and was covered once without result, and two months later presented to another bull of four years, strong, and which had not served cows for a few days. Since this second covering the heifer remains with her back arched, her coat is dull, rumination

is gone, the fæces are black and coated, micturition is painful and the temperature is 40° C., the pulse 55 and the respiration 12. Through the rectum a swelling as big as a duck's egg is found on the floor of the pelvis and pus is squeezed out of it through the vulva, which being very small, prevents all surgical interference. The animal was sent to the butcher. On the floor of the vagina, a little forward of the urinary meatus, there is a fistulous tract which opens into an abscess containing pus having a very offensive odor.—(*Rev. Gener. de Medc. Veter.*)

CHONDROMA OF THE HUMERUS IN A COW [*Mr. Eisenmenger*].—The animal presented near the left shoulder an oval tumor, painless, hard and covered by normal skin. It extended from the superior third of the scapula to the middle of the humerus and from the shoulder joint to beyond the posterior border of the scapula itself. It did not interfere with locomotion. The animal was slaughtered. The growth was found firmly attached to the deltoid impress of the humerus; it is cartilaginous in nature, measures 43 centimeters in its vertical axis and 36 right across. It weighed 9 kilogs. 365 grammes. This chondroma was probably the result of traumatism and was interesting by its rarity and its enormous size.—(*Rev. Gener. de Medc. Veter.*)

VAGINAL LACERATION FROM COIT IN A SLUT—DEATH BY HEMORRHAGE [*M. M. Douville and R. Germain*].—This animal had had already three litters of pups. She never had any trouble and was served by the same dog every time. The last time after being covered she had bloody discharge from the vulva. In the evening she seems all right. The next morning she is dull, lying down, and a clot of blood is found in her bedding. She has fever, her visible mucous membranes are pale, the respiration is accelerated, the pulse a little quick. Warm boiled water injections in the vagina are prescribed and 250 grammes of physiologic serum are given sub-cutaneously. Although she appeared better later in the day, the hemorrhage has returned during the night and some of it drops yet by the vulva. Digital exploration is negative and no solution of continuity is detected. Same treatment is followed by short improvement. But this is only temporary as the hemorrhage returns, and notwithstanding energetic treatment the slut dies in a few hours. At the post mortem, every organ was found healthy except the genitals. At the inferior face of the vagina, there was a little ecchymotic spot, alongside the course of one vaginal artery. And while this ecchymosis existed on the outside face, in examining the internal

face of the organ, opposite it, there is a narrow straight tear whose edges are kept together by recent clots of blood. In separating them it is easy to see that the vaginal walls are all torn and that the artery was involved in the injury with its coats being also torn, internal hemorrhage and death resulting from it.—(*Rec. de Medec. Veter.*)

BELGIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

COMPLICATED LEUCORRHEA IN A MONKEY [*Prof. Hebrant and Antoine, Assist.*].—This animal had a very large tumor which on superficial examination could be taken for an hypertrophied or hyperplasic process. The ischiatic prominences were covered with a growth, rounded in the center of which could be seen the depressed anus and vulva. This mass, which was flattened, extended laterally over the gluteal region and appeared as a fixed cushion upon which the animal was sitting, apparently not inconvenienced by it. Defecation and micturation were performed normally. The growth was neither congested nor inflamed. To make a better examination it was necessary to secure the animal in a proper manner, and then it was found that the tumor was a firm œdema and that there was a discharge from the vulva, which was of milky appearance, mucous, and when examined with the microscope, showed white corpuscles, vaginal epithelial cells and no red corpuscles. The case was one of vaginal leucorrhea complicated with the ischiatic œdema, resulting from the irritation of the discharge rubbing on the ischial tuberosities when the animal was sitting. Injections of boric solutions made twice a day, massing applied to the œdema were followed by recovery in short of ten days.—(*Annales de Belg.*)

RESEARCHES UPON ENZOOTIC CEREBRO-SPINAL MENINGITIS [*Mr. Marcq*].—This affection known in Belgium under the name of "Aizeau's Disease," is considered by some as a specific microbian disease, and by others as an autoxication from substances existing in fodders. The writer has followed this affection in a stable of eight horses where three became diseased, and in another with seven horses where six became affected.

These horses had paraplegia, with spasms, during which they struggled violently. From cultures of the cerebral substance of one animal that had died, the author succeeded in isolating a microbe, single or double elements, analogous to those described in Germany and found in the district of Bronn. The march of the disease is irregular, generally completed in eight or ten days. Often there are complications of pneumonia by foreign bodies. Mortality may reach 70 to 80%. Paresia of the hind quarters is a very frequent sequelæ in recovered cases. It is always indicated to isolate the sick and to disinfect the floor of the stables so as to guard against contagion by urine and fæces. The use of slings is recommended. Empty the bladder as well as the rectum, as necessary. Medical treatment is doubtful in its results. Iced compresses, calomel, iodide of potassium, subcutaneous injections of camphorated ether or artificial serum.—(*Annales de Belg.*)

Remarks on the Nature of Hypertrophying Osteo-arthropathy—A Case of it in a Tuberculous Horse [*Prof. Lienaux*].—The author recalls the work done previously, which had a tendency to attribute a certain number of cases of the bony syndroms of Marie to tuberculosis. Hypertrophying osteo-arthropathy of man is exactly similar to the diffuse osteo-periostitis of dog, to the macroscopical and the histological point of view. Ball and Alamartine have recently described a case of this last affection in a tuberculous dog. Prof. Lienaux reports a similar co-existence of the two diseases in a horse and says: "It seems, without doubt, and with perfect reason that the actual tendency is to attribute the bony processes in question to toxic action, peculiarly to toxi-infection and it is not at all contrary to the teachings of general pathology to make as interfering in their genesis, the toxines of Koch's bacillus on the same manner as the toxines of syphilis and other diseases have been accused of before them. But it is certain that the hypertrophying osteo-arthropathy can exist outside of tuberculosis, as it is proved by the case of diffuse osteo-periostitis of dogs in which tuberculosis was not present. I also believe," adds Lienaux, "that there is no need to consider these bony lesions, when associated with tuberculosis, as a localization of that disease, attenuated or not. If the multiplicity of the interested bony structures, the invasion of all the tissues of the bony system, periosteum, bone itself, marrow, demonstrate the existence of a general state reacting upon this system, the almost perfect symmetry of the altera-

tions, authorizes one to admit that the morbid influence comes from the nervous centers. The observed bony lesions appear then as neurotrophic troubles, and this pathogeny is sufficient to explain the want of an adequate specificity to that of the toxins which have produced them only in an indirect manner."—(*Bullet. de l'Acad. de Medec. de Belg.*)

TWO CASES OF SARCOMA OF THE SHEATH OF THE PENIS IN THE DOG [*Prof. Hebrant and Antoine, Assist.*].—The interesting part of these two cases rests on the situation occupied by the tumors which was quite similar in both animals and in both being located in the suspensory ligament of the sheath.

The first tumor was found in a dog which had been chloroformed to death. Between the inferior face of the abdomen and the superior border of the penis there was a tumor which had pushed the penis away from its position. The growth was as big as the fist of a man and was ulcerated on its surface. The skin was not adherent to it except round the edges of the place where it was ulcerated. It was a sarcoma.

The second case belonged to an animal which passed bloody urine frequently and carried a swelling on the penis. Indeed, in the thickness of the sheath there is a tumor as big as two big fists, which is covered with congested skin, and is formed of two growths, one to the left, the larger, and one to the right. They are hard, bosselated, irregular, not adherent to the skin, to the abdominal walls nor to the penis. After chloroformisation and subcutaneous injections of adrenalin, the left tumor was exposed, dissected and removed. The right one was enucleated through the same incision, after division of a fibrous band which separated the two neoplasms. Antiseptic dressing was applied. The two growths weighed 310 grammes and proved to be sarcomatous in nature, as in the first case. Recovery was perfect.—(*Annal. de Belg.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

SOME OPINIONS CONCERNING FLATULENT COLICS IN THE HORSE [*Prof. Hendricks*].—All clinicians agree that in the majority of cases of colics in the horse, and especially those of

a flatulent nature, it is difficult to determine an exact etiology. The chief cause of the latter may be sought in the lack of contractility of the intestine, a condition which the author ascribes as not being the cause but rather the result of abnormal fermentation taking place in the intestine. Hendricks is of opinion that the intestinal paralysis is the result of the hyperextension of the intestinal walls under the influence of the rapid accumulation of gases. If that were not so, why should the pathological condition be relieved immediately after puncture of the intestine? According to the views of the author, feed plays a minor part in the etiology of colics, because it appears after each kind, be it oats, barley, maize or green food. On the contrary, the quality of the food has the greatest influence, and it is the mouldiness of the latter which is the prime factor. He had eight fatal cases in a stable as a result of corn feeding, the examination of which revealed the presence of small black specks formed by mould fungi and which had enveloped the embryo. It must therefore be accepted that through the action of the lower organisms digestion had become instantly modified to the extent that besides the normal gases a large quantity of similar gases formed which can only take place in lesser proportion under physiological conditions. These gases are sulphuretted hydrogen and carburetted hydrogen, which especially form and accumulate in the large intestine. Horses attacked with flatulent colics either die or recover within twelve hours, but when the abnormal fermentation is checked and the gases already formed escape per anus or by means of puncture, a fatal issue is avoided. Death may be attributed to many causes. A quantity of these gases are absorbed by the intestinal mucous membrane and from there it is conveyed to the blood, where it produces blood poisoning. On the other hand, the extreme distension of the intestine, the diaphragm being pressed forward and immobilized, interferes with respiration and the interchange of gases, resulting in surcharging of the blood with carbonic acid. In many cases death has resulted from rupture and overdistension of the intestinal walls, which is aided by the sudden and violent falls of the horse in his intense pain. In consideration of the rapid progress of the disease the treatment must be energetic and timely. First of all we must aim to hinder blood poisoning, which is best accomplished by puncture of the cæcum. We must use a trocar of small diameter which permits the gases to escape freely and which, after being withdrawn, allows the

punctured edges to close immediately and leave but a slight wound behind. The puncture is made in the center of the triangular space which is formed by the transverse processes of the lumbar vertebrae, the last rib and the superior border of the oblique abdominal muscles. The trocar being pushed downwards and outwards in order to avoid injuring the kidney, then we are certain no fatal results will follow. The alarming condition of the horse immediately becomes better and the practitioner has now only to prescribe some suitable medication. The contraction of the intestines is brought about by a subcutaneous injection of eserine and by copious infusions of cold water in the rectum. The author gives also 2 grammes of calomel every half hour for 3 hours. This has an antiseptic action and arrests or diminishes further fermentation in the intestines. Through its purgative effect it removes a portion of the matter liable to fermentation. It is thought that puncture of the intestine (cæcum) might produce peritonitis, but this can be avoided by the use of a small trocar. The superiority of this method of puncture counteracts its disadvantages. In spite of antiseptic precautions at the seat of operation and a sterilized trocar, infection can take place, as the intestine might have been punctured, and in withdrawing the canula particles of excrement containing bacteria are deposited in the subcutaneous connective tissues of the flank. However, this condition is not dangerous, as by means of a small incision we can secure the escape of pathogenic products. In conclusion the author advises never to delay puncture of the cæcum because through this almost undangerous operation a large number of horses suffering from flatulent colics can be saved.—(*Berliner Tier. Wochenschrift, No.* 25, 1908.)

Cystitis and Its Treatment [*Prof. D. Gmeiner, Giessen.*—The author refers to the fact that each case of cystitis is microbic in origin. The infection occurs as a rule through the adhering pathogenic bacteria when a congestive condition of the mucous membrane of the bladder exists, or infection may be facilitated through retention of the urine. There are three forms of infection: First, the urethral or urogenic, also called the ascending; second, the infection of the bladder walls through the deposition of bacteria from neighboring sources; finally, the renal or descending or hæmotogenous. Regarding the treatment of cystitis, the remedies recommended are usually prescribed in doses much too strong. It is evident that a 3 per cent.

carbolic solution, 1 per cent. silver nitrate solution, 2 per cent. ichthyol solution, and 1 per cent. corrosive sublimate solution irritates to a marked degree the sensitive mucous membrane of the bladder and consequently aggravates the local disorder. If we desire to obtain good results by means of lavage, we must select substances which possess corresponding disinfecting properties but which must be absolutely non-irritating in action. As such, Gmeiner recommends for internal medication urotropin (Hexamethylentetramin), and for local treatment and vesical irrigation the preparation Hydrargyrum oxycyanatum. Nicolaier has proven that urotropin when given internally, under the influence of blood pressure in the kidneys, splits up into formaldehyde, and the latter part as such and part, combining with urinary substances, hinders the growth of microorganisms and restricts their action along the urinary passages. Furthermore, Urotropin has the advantage of being a uric acid solvent and produces diuresis. Besides, it is a fact that the name Urotropin is patented. However, we can dispense with Urotropin and substitute Hexamethylentetramin, the latter being eleven times cheaper than the former. Regarding irrigation of the bladder, Hydragyrum oxycyanatum is recommended. Like corrosive sublimate, it is prepared for the trade in tablet form. This agent has displaced corrosive sublimate to a large extent. In *Veterinary Medicine* Richter (Dresden Clinic) called attention to its very valuable properties in the B. T. W., (1903, p. 289). The preferential claims for the mercurial cyanide depends upon its non-irritating action on the tissues, its excellent curative properties, and even in a dilution of 1 to 1,000 is preferable in many surgical cases to all other disinfectants. Gmeiner examined carefully the urine (centrifugated condition) of each sick animal and found that cystitis occurs more frequently in animals than is generally known. The author reports nine cases of cystitis which he treated successfully with the preparation above mentioned. In the ninth case he experimentally produced hæmorrhagic nephritis and cystitis in rabbits; two of the control animals died which were not treated. The price of the preparation, Hydrarg. oxycyanatum, is 1 *M.* 65 pf. for 100 grammes. Hexamethylentetramin costs 70 pf. for a like quantity, and Urotropin 7 *M.* for the same weight. Gmeiner compiles his results as follows. 1st. Hydrarg. oxycyanatum, in a concentrated solution of 1-5,000 to 1-10,000 in water with the addition of a like quantity of magnesium sulphate is a disin-

fectant eminently satisfactory for lavage in inflammations of the urinary tract, especially cystitis in the domestic animals; besides, it is non-poisonous and perfectly non-irritating. It is a staple article and cheap and has a most extraordinary bactericidal action. 2d. In Hexamethylentetramin (also termed Urotropin) we possess a preparation which is of inestimable service in the internal treatment of nephritis, pyelitis and cystitis. The dose for small animals being 0.5-1.0 grammes three times daily. For larger animals, 5-10 grammes three times daily, well diluted. 3d. The combination of both methods of treatment give excellent results in cystitis of the domestic animals.—(*Monatsheft für Wissenschaft und prakt. Tierheilkunde, xviii. Bd. 1 und 2 Heft.*)

THE MEDICATION TREATMENT OF RUMINANTS [*S. Lászlo, Ungarn*].—In the administration of medicines to ruminants we frequently fail to consider the form in which the agent is to be given and that part of the gastro-intestinal tract it is intended to act upon. For instance, we are apt to prescribe remedies in solid form which should act upon the intestines and those in fluid form which should act upon the stomach. Lászlo experimented with suckling calves, cows and sheep. He administered to those animals harmless substances which could be easily recognized in the digestive canal and which were given both in fluid and solid forms. The results of his experiments are as follows: In the case of suckling calves, the larger part of the fluid given was found in the fourth stomach. In grown cattle, the substance given in solid form was almost invariably found in the infero-posterior part of the rumen, while the larger portion of the agent given in the fluid form found its way into the second and third and fourth stomachs and only a minute quantity was discernible in the rumen (in the anterior sac). The fact that the fluids having been found in the second, third and fourth stomachs and the solids remaining in the posterior sac of the rumen should always be borne in mind when prescribing medicines for ruminants. Before deciding as to the form in which the remedy is to be given we must consider the particular portion of the digestive canal it is intended to act upon. Agents to be administered in order to excite gastric peristalsis in overloading of the paunch should not be given in fluid form, as only a small portion gains the stomach. Again, it is not advantageous to prescribe remedies to act upon the intestines in solid form, as they remain for an indefinite time in the paunch and only later reach the intestines in small and diluted quan-

tities. Drugs which have an irritating action upon the mucous membranes are best administered in the form of a bolus with linseed meal as an excipient, or a decoction of flaxseed as a vehicle. We can only get good results with fluid remedies in the stomach when they are administered by means of the stomach pump.—(*Berliner Tierarzt. Wochenschrift, No.* 8, 1907.)

A CONTRIBUTION TO THE STATISTICS OF CANINE DISTEMPER [*Dr. Wierth, in the Medical Clinic of the Imperial Veterinary High School, Vienna*].—Dr. Wierth compiled statistics from the year 1901 to 1906 regarding the occurrence of distemper according to breed, sex, character of the disease and results of treatment. He concludes from these statistics that the breed has no influence on the number of animals affected with the disease. However, there seems to exist some physical force in certain breeds in regard to the favorable or unfavorable termination of the distemper. The least unfavorable issue exists in the breed of fox terriers. Wierth found, further, that females possess a greater disposition toward the nervous form than males, and that the mortality among puppies was no greater than in grown animals.—(*Tierarztliches Centralblatt, No.* 13, 1908.)

ACUTE GASTRO-ENTERITIS IN A BEAR [*Dr. H. Jakob, Munich*].—Jakob diagnosed acute gastro-enteritis in a four-months-old brown bear which fourteen days previously had been imported from Russia. The symptoms were inappetence, nausea, vomiting, diarrhœa, uneasiness, great prostration. The fearful cries of the animal prevented a closer examination being made. The bear was placed in a warm room and given 5 grammes of Tannoform daily in a decoction of rice and milk slightly sweetened. Five days after the bear had completely recovered.—(*Wochenshrift für Tierheilk. und Viehzucht, 52 Jahrg., No.* 6.)

THE INJECTION OF BORACIC ACID SOLUTION IN THE TREATMENT OF MASTITIS OF THE COW [*Vet. F. thor Straten-Faxe*].—Dr. thor Straten treated cows since the preceding autumn with injections of boracic acid solution. He employed for each injection 150 c.cm. of a 3 per cent. solution. In all he treated 16 cases.

1 case, 1 injection, cured after the 3d day.
8 cases, 1 injection, cured after the 7th day.
5 cases, 2 injections, cured after the 14th day.
1 case, 2 injections, cured after the 18th day.
1 case, 2 injections, lost one quarter.

In the two latter cases the secretion was brownish in color and emitted a very disagreeable odor. The author assumes that the results would have been decidedly better had he been given the opportunity to treat fresh cases. Unfortunately he was always called upon to treat cows in which the disease had been of many days' duration.—(*Maanedschrift für Drylaeger,* 18 *Band, Heft.* 11.)

OBITUARY.

MILIKAN STALKER, V. S.

Prof. Milikan Stalker, of the Iowa State College, died at his residence, Ames, Iowa, June 14, 1909, in his sixty-eighth year. Dr. Stalker was born in Plainfield, Indiana, on August 6, 1841. He came of Quaker ancestry, and his purity of character was one of his principal charms. Earnest and progressive from the start, he headed the first veterinary school of the west, in directing the veterinary department of Iowa State University, which was opened in 1878. His influence upon the character of the graduates of that institution is plainly evident in some of our best known American veterinarians. His demise will be deeply regretted by the entire veterinary profession of the country.

From extensive reports in *The Register* and *The Advertiser* of Adelaide, South Australia, we learn of the prevalence of "Dry Bible" in the north, around the dairying centres of Orroroo, Hammond, Amyton and Quorn. At the latter place the death rate has been high. On one dairy farm stocked with forty milking cows, the whole herd have succumbed to the disease, while on other farms fifty to seventy-five per cent. having the disease have died. The disease is found under all kinds of conditions, such as on "salt bush country," where there is an abundance of feed, and where unlimited supplies of deep well and dam-water exist, as well as in other sections that are dried up; what little herbage there is left being dried to a tinder and far from being nutritious. Chief Government Veterinary Surgeon Desmond has been engaged for several weeks making a careful investigation, and his report on it will, no doubt, be interesting.

CORRESPONDENCE.

To the Editors of the AMERICAN VETERINARY REVIEW:

In connection with your remarks in the June REVIEW in relation to the forthcoming meeting of the New York State Veterinary Medical Society, I beg to remind the members of the society that at that meeting there is to be nominated ten veterinarians, from whom five are to be selected by the Board of Education to constitute the incoming State Board of Veterinary Examiners, who will hold office for the succeeding five years.

No other veterinary society in America carries so important a responsibility in reference to the advancement of the veterinary profession as does our state society. In nominating the men from whom the State Board of Veterinary Examiners is to be constituted, the veterinary profession of New York shows its aims and ideals, by the character of men whom it selects. The work of the Board of Examiners constitutes an official record which is open to inspection and comment of the veterinary profession at large. If the veterinary profession in the State of New York is to advance in harmony with the pretensions of its members, the personnel of the examining board should be such as to command the respect of the profession in America at large.

During the existence of the Board of Examiners, it has more than once laid itself open to very unfavorable criticism in many respects. As a general rule, the personnel of the Board has been thoroughly representative of the profession at large. On the Board there have been, and now are, some of the representative veterinarians of the state, whether regarded from the professional or the moral standpoint. There has, however, been much carelessness shown in the nomination of candidates for appointment to the Board, and this carelessness has reflected more or less seriously upon the body of the profession as a whole. Among the criticisms which may well be mentioned, a serious one is that of delay on the part of the Board in marking the papers of the candidates for license. As a general rule, the examination papers submitted in June are not marked completely until late in August or in September, and the graduate who has applied for license is held up for a provokingly long period, so that he is strongly

tempted to violate both the letter and spirit of the law, by entering into practice prior to license. Just where the trouble lies it is difficult to determine, but, apparently, the delay is usually caused by one or two negligent members, who, apparently, have something else at heart besides the honor of the profession in the state.

A more serious criticism is the character of the examinations themselves. Sometimes the list of questions submitted exhibits a regrettable degree of ignorance upon the part of the examiner, showing quite well that he does not recognize the difference between an important and a worthless question. An examination for license should be a real test of the fitness of the man to practice veterinary medicine and surgery. In other instances, the examiner evidently looks up some catch question in some veterinary book, or evolves some trivial catch question in order to give an impression of his own learning. Sometimes the question seems to be framed with the express intent of confusing the candidate or of misleading him. Sometimes there seems to be even more sinister motives behind the questions.

The following is the official examination paper of a recent examination in surgery:

University of the State of New York

No.

49TH VETERINARY EXAMINATION.

Place

SURGERY

Wednesday, June 26, 1907—1.15 to 4.15 p. m., only

Answer any 10 *of the questions on this paper but* no more. *Check* (√) *the number of each one of the questions you have answered. Unless otherwise stated all questions relate to the horse.*

1. Describe *two* methods of securing the hind limb by side line.

2. Describe *three* of the following methods of throwing a horse: Rohard's, Rarey's, the Russian method, the Danish method, the Stuttgart method.

3. Describe a method of casting and securing an ox.

4. Draw *three* designs for line cauterization.

5. Give the symptoms and the treatment of umbilic hernia.

6. Give the differential diagnosis of furunculus and lymphangitis in the hind leg. Give the treatment of each.

7. Describe Hobday's hopples for the dog.

8. Describe the process of removing the first, the second, or the third molar without trephining.

9. State when it is necessary to float the molars and how it should be done.

10. Give the symptoms, prognosis and treatment of thrombosis of the external iliac artery.

11. Give the symptoms and the treatment of luxation of the patella.

12. Describe Wolf's mouth speculum or gag for the dog.

13. Describe a method of castrating swine.

14. Describe a method of castrating birds.

15. Give the symptoms and the treatment of rupture of the flexor metatarsi muscle.

A careful perusal of this list of questions illustrates very well the force of the criticisms which we have suggested above.

In the entire list of questions there are but six or seven which may be regarded as straightforward and of practical importance, and among all of these there are but two or three which have any great merit as tests of the ability of the candidate.

It is not at all surprising that a large proportion of candidates for license failed in their examination upon this list of questions. Admittedly there are candidates for license who should fail, but we hold that no one can tell whether a man should be failed or passed upon such a list of questions. Yet one member of the present Board of Veterinary Examiners is said to have filed a communication with the Board of Education of the state that he considered this list of questions fair and honorable, and presumably the member who submitted this list of questions and marked the papers felt that he had the power to do so.

This matter is presented with a view to calling the attention of the members of the society to this very important question of the selection of nominees for the new Board. If the members consider such a list of questions as a fair test of the ability of the candidate, those members of the Board who have a high regard for this list should be urged to remain upon the Board, and should be unanimously renominated by the society. If they consider that such a list of questions does not reflect credit upon the veterinary profession of the State of New York, then the

veterinary profession should look for a different type of men from which to make up its Board of Veterinary Examiners.

When the present Board was nominated there was an unfortunate declination upon the part of some prominent and able members to stand for nomination. If our profession in the State of New York is to maintain a reasonable degree of dignity and win the respect of the American veterinary profession at large, the leading members of the profession in the state should be ready to ignore any personal inconvenience of serving upon the Board, and permit the use of their names as candidates for nomination by the society. It is only by each member taking a thorough and intelligent interest in the question that the profession can hope to advance. If some of the actions of the past are frequently repeated in the future it will not be long until the State Board of Examiners will need to be wiped out of existence in order to protect the honor and good name of the profession of the Empire State.

W. L. WILLIAMS.

Editors AMERICAN VETERINARY REVIEW.

It will be remembered by those who attended the recent International Congress on Tuberculosis at Washington, that in Section Seven, Professor J. F. Heymans, of Ghent, Belgium, gave an address on vaccination of cattle against tuberculosis,* amplified by diagram on blackboard. The address was in German. A few days later I had the pleasure of Prof. Heymans' company, in which I learned more of his vaccination method; and since his return to Belgium, I have received a quantity of inoculation capsules together with a trocar and canula expressly used in making the vaccination, and some literature which explains his method; giving the mechanism and some logic on the physiologic action of the treatment.

Heymans' method transcends Behring's, in so far as the bacillli are not liberated in the circulation of the vaccinated animal, which in the latter's method has the disadvantage of a possible infection to the human being, by reaching the lungs through the circulation, and possible expulsion, by the animal in the stable, or on the clothing of daily attendants.

So far, the question of a practical method in the elimination of bovine tuberculosis in this country has not gained a satisfac-

*Appears elsewhere in this edition.

tory or substantial footing. Our present method goes round in a circle. It is not so important to know that the cattle of a certain district are tuberculous, as revealed by tuberculin tests, as it is to institute means which contend to prevent the propagation of the disease. The blow to be struck against the plague in cattle, is the inoculation of the animal soil with an antitubercular vaccine or serum, and the removal of physical causes which are constantly obstructing nature in her demand to maintain health and longevity.

To lose sight of these factors, and to continue to focus our attention on tuberculin as the sheet-anchor, is simply to prolong the struggle and maintain the stumbling-block.

On this view of the situation, I offer to the readers of the REVIEW this recent paper by Prof. Heymans, setting forth, in clear light, a suggestion which ultimately will solve the problem.

CLAUDE D. MORRIS.

GOING to the dogs, at any rate, is no indication of degeneracy among fleas.

"CANINE SURGEON TO THE KING" is the peculiar title borne by the eminent veterinarian, Alfred Sewell, who has supreme medical charge of the innumerable dogs of Edward VII., of Queen Alexandra, and of the other members of the English royal family; and as a member of the household of the king and queen, he wears on state occasions a handsome gold-embroidered uniform. He cannot be regarded in the light of an ordinary "vet," but rather as a specialist, and is summoned periodically to St. Petersburg and to Berlin for consultations with surgeons entrusted with the medical supervision of the canine pets of the czar, of the czarina, and of the kaiser. Sometimes, too, he is called to Vienna and to Paris, even to Madrid, for consultations, and on these occasions receives fees for his services which would make the mouth of any ordinary medical practitioner water with envy. Often he prescribes changes of air for his four-footed patients. In fact, this is one of his most favorite remedies, and he thinks nothing of ordering a valuable dog all the way from St. Petersburg to Nice, in charge of special attendants; and St. Bernards in a similar way from the south of England to Alpine resorts in Switzerland, with the object of restoring their tone by the bracing air of the mountains.—*Detroit News, March 20.*

BIBLIOGRAPHY.

"SPEZIELLE PATHOLOGIE UND THERAPIE DER HAUSTIERE," by Dr. Franz Hutyra, Professor of Contagious Diseases, and Dr. Josef Marek, Professor of Special Pathology and Therapy, in the Veterinary High School, Budapest. Second revised and enlarged edition. Two volumes, with 319 illustrations and six plates. Published by Gustav Fischer, Jena. Price, 44 M., bound, 48 M.

Through the success which greeted the appearance of the first edition of this admirable work and the rapid exhaustion of that issue, the authors felt compelled to prepare and publish a second edition, the latter appearing in little less than three years after the publication of the first. In this relatively short interim scientific investigation in medicine made such rapid strides and important data obtained as a result of careful research work that it became imperative to introduce into this edition new chapters, to revise and modernize the pathology and therapy of many diseases treated of in the previous edition, and, in general, to improve or supplement and amplify almost all the chapters. The new work is profusely illustrated, the number of illustrations having been increased from 270 to 319 and the number of plates from 3 to 6, the latter being highly instructive, representing stained specimens such as the negri bodies, blood preparations of lymphatic leukæmia, myelogenic leukæmia, trypanosoma equiperdum, cultures of bacteria (glanders, tuberculosis), and others. The chapters on new diseases are devoted to those of paratuberculosis, enteritis of cattle, enzootic pneumonia of young animals, infectious anæmia of the horse, various forms of nasal and oral inflammations, atony of the paunch, hyperidrosis, and seborrhœa. The chapter on tuberculosis is voluminous and exhaustive, covering 126 pages; the final pages of the article treating of the various reactions obtained with the brochemic agents, also the several methods dealing with the extinction of the disease. Glanders is treated of at similar length. An innovation, with reference to the literature on each subject, is to be found at the end of the article, where an indexed bibliography is inserted; this is considered as highly practical in value to the work. As the first edition was received with marked success it must certainly follow that the new edition will be thrice welcomed. It

will prove an excellent reference book to the practitioner of veterinary as well as of human medicine. For the student the work is clear and comprehensive. In brief, the work is a masterpiece on its subject, and we dare say that it is unexcelled by any other German publication of its nature.

Just as we are going to press with this review of the works of Hutyra and Marek, we learn, with much pleasure, that veterinarians who do not read German are soon to have the benefit of them in the form of an English edition from the pen of Prof. Chas. H. Higgins, of the Health of Animals Branch, Department of Agriculture, Ottawa, Canada. His publishers have been promised the first volume for September, 1909. The work is far more comprehensive than any in the English language and each statement has the author's name attached, making it a very handy book of reference.

THE COWCATCHER.—While the visitor told how he had ridden thirty thrilling miles on the cowcatcher of a locomotive five-year-old Lorella listened attentively. As he concluded she asked, "Did you catch the cow, Mr. Blank?"—(*Chicago News.*)

STUNG.—"That man has no conscience."

"Why do you think so?"

"He cheated me fearfully in a horse trade in which I supposed I was easily getting the better end of the bargain."—(*Chicago Record-Herald.*)

A LIGHT DIET.—A certain father who is fond of putting his boys through natural history examinations is often surprised by their mental agility. He recently asked them to tell him "what animal is satisfied with the least nourishment."

"The moth!" one of them shouted confidently. "It eats nothing but holes."—(*Youth's Companion.*)

WHAT KILLED THE CAT?—Little Davey Sloan is forever asking questions.

"You'd better keep still or something will happen to you," his tired mother finally told him one night. "Curiosity once killed a cat, you know."

Davey was so impressed with this that he kept silent for three minutes. Then: "Say, mother, what was it the cat wanted to know?"—(*Everybody's Magazine.*)

SOCIETY MEETINGS.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

ADDRESS OF PRESIDENT DR. H. FULSTOW, ANNUAL MEETING, COLUMBUS, JANUARY 12-13, 1909.

It affords me great pleasure to appear before you to-day to address this meeting. And I wish to express you my sincere thanks for the highest honor you have conferred upon me by electing me to preside over this body of learned veterinarians. It has been about fifteen years since I joined this association, and I have been proud of it ever since I became a member. Many changes have taken place, a good many old faces I do not see any more, but their places are continually being filled by new ones. The veterinary profession has made vast strides in the last twenty years, colleges which were then two years of about six months each, are now three years of from six to nine months. The entrance requirements at that time were simply the fee, but now in order to matriculate you must have a high school certificate of first class, or a college degree; or if you have none of these you must pass an examination which is the equivalent. Chemistry and bacteriology are more thoroughly studied. Meat and milk inspection and stock judging have been added, which are very necessary to the veterinarian who would be up-to-date. A good many farmers are taking agricultural courses, fitting themselves to cope with new and modern ways of farming, especially in the improvement of stock raising; they also get the course in stock judging, and are themselves just as capable of judging stock as the average veterinarian. The farmer of to-day is not the illiterate farmer of thirty or forty years ago, but he is an educated farmer. Many diseases which were very fatal are now cured by simple treatment. Milk fever, for instance. When I graduated, it was almost sure death, now by the use of oxygen we are able to save about 90%. Many new diseases are making their appearance in this country, although they are not new in the old world, such as foot and mouth disease, which made its appearance in the New England States in the winter of 1902-1903. It again made its appearance in New York, Pennsylvania, and Michigan this winter, but by the energetic and

efficient service of the Bureau of Animal Industry they have been able to prevent its further spread, although as far as I am able to learn, they have not been able to trace its origin in this last outbreak. Boards of health are beginning to realize the importance of the veterinarian as a sanitarian. No board of health is complete without one of its members a veterinarian. In my home town the board of health is composed of five members: there are two M. Ds, one veterinarian and two business men. When you stop to consider the many ways in which the veterinarian guards the public health, his value is immeasurable. There is nothing in the world that causes more diseases in the human family than impure milk, especially among children. He teaches his clients how to guard against disease, as well as assist nature in curing disease. I wish to suggest (and hope that it will be acted upon and carried out at this meeting), that a new order of business will be formulated for this and future meetings of this association, whereby all the executive business be transacted before the literary program be touched upon. Any part of the business or new business which may have been overlooked or may arise during the rendering of the literary program should be acted upon before the clinics are held. I believe we have outgrown the time allotted to our meetings; the sessions are too crowded for time, we have no more time than when the membership was only one-fourth that of to-day. One of two things exists, either we are woefully non-progressive or do ourselves and the profession great injustice. I think one more day added will meet with approval. It is not my desire or intention to extend this address to a tedious length. We have our business and literary program and the clinics, and our time is all too short for these things. So with this I bid you welcome to this the twenty-sixth annual meeting of this association, and hope that it may prove one of the most profitable in its history.

YORK COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular quarterly meeting of the York County Veterinary Medical Association was held June 16, 1909, in the National Hotel. A large number of city and county veterinarians were in attendance. The meeting was featured with short talks by Dr. E. S. Bausticker, secretary of the society. His course of

remarks included practical cases he came in touch with since the last meeting. They were "Induration, or Hardening of an Inverted Horn of the Uterus of a Cow and Its Amputation" and "A Case of Volvulus or Twisted Bowel in a Horse." Azoturia in horses and milk fever in cows and the best treatment for the same were discussed in full by the members present. The next meeting of the society will be held on Tuesday afternoon, September 7, in this city.

AN INSTANCE.—Hewitt—I was once kicked by a donkey. Jewett—We often hear of people kicking themselves.—(*New York Press.*)

THE BARGAIN.—"You ought to take this horse," said the dealer. "He's a bargain."

"Well, then, I don't want him," said the customer. "I want something to drive, and I never could drive a bargain."

THE CONSULTATION.—Friend—You've never been called in consultation, have you? Young Doctor—No, but I'd like to be. It's nice to charge ten times as much as the other doctor for saying that you don't know any more about the case than he does.—(*Puck.*)

ENJOYED IT.—"Look at that Boston girl at the phonograph. She is actually smiling." "Yes, she is listening to Prof. Beacon's delightful dissertation on the 'Fungous Diseases That Attack the Larvae of the Brown Tail Moth.'"—(*Cleveland Plain Dealer.*)

THE State Board of Veterinary Medical Examiners of Tennessee, which was recently appointed by the Governor, met in Nashville on June 9 and organized, with the following result:

Dr. Geo. R. White, President, Nashville, Examiner in Veterinary Anatomy and Veterinary Surgery; Dr. M. Jacob, Secretary, Knoxville, Examiner in Veterinary Physiology and Veterinary Pathology; Dr. J. W. Scheibler, Vice-President, Memphis, Examiner in Veterinary Practice and Veterinary Materia Medica; Dr. A. C. Topmiller, Treasurer, Murfreesboro, Examiner in Veterinary Obstetrics and Chemistry.

At this meeting certificates of permanent license were issued to Drs. Frank R. Yourre, McKillip, '09; W. L. Gates, Ontario Veterinary College, '08; Chas. L. Lumby, McKillip, '05, and A. T. Leach, McKillip, '09.

NEW LAWS ENACTED.

NEW TUBERCULIN LAW.

CHAPTER 588.—An Act to amend the agricultural law, in relation to tuberculin, issuing certificates relative to tuberculin tested cattle and the branding of tuberculous cattle.

Became a law May 29, 1909, with the approval of the Governor. Passed, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Chapter nine of the laws of nineteen hundred and nine, entitled "An act in relation to agriculture, constituting chapter one of the consolidated laws," is hereby amended by adding thereto a new section, to be known as section sixty-four-a, to read as follows:

Sec. 64-a. *Tuberculin, issuing certificates relative to tuberculin tested cattle, branding of tuberculous animals.*—Any person using or injecting tuberculin into bovine animals for the purpose of determining whether they are affected with the disease known as tuberculosis, shall take the temperatures of such animals before, during and after such injections, according to the most approved methods, shall keep a correct record of such temperatures so taken and shall send a report within one week thereafter to the commissioner of agriculture giving a detailed account of the tests thus made, including the description of animals, the location of the farm or farms upon which tests were made and the name and address of the owner or custodian, and such other information concerning the use of tuberculin as may be called for by the commissioner of agriculture. A report of each such test so made shall be accompanied by a statement of the owner or person in charge giving the date upon which the said animals were last tested, if at all, and if known, with tuberculin, and the name and address of the person or persons making such test. If no such test has been made within four weeks, or if the animals were not treated in any manner for the purpose of preventing their normal reaction to tuberculin, then the report shall be accompanied by a statement setting forth such facts and the said

statement shall be duly verified by the person making such statement. No person shall give a certificate showing or tending to show that an animal has been tested and found not affected with tuberculosis, unless the character of such test is stated and it was made in a proper way, and unless such animals failed to give a typical reaction. Any bovine animal in which tuberculosis is clearly diagnosed by a physical examination or a tuberculin test, or both, shall be branded upon the forehead or upon the right side of the neck from six to ten inches back of the jaw bone with a capital "T" not less than two inches high, one and one-half inches wide, with mark one-fourth of an inch wide; such branding shall not be construed as cruelty to animals within the meaning of the penal law; however, any animal which has reacted to the tuberculin test and appears physically sound may be retained for breeding or dairy purposes without such branding, provided a full description of such animal, sufficient for its identification and satisfactory to the commissioner of agriculture, is furnished to the commissioner of agriculture and a permit from said commissioner is issued for keeping such animal in such manner. Such permit shall not be issued except upon the condition that the animal will thereafter be kept in a proper manner with regard to the protection of the public health and the health of other animals, and no such animal shall be sold or removed from the premises without written permission from the commissioner of agriculture, and all such animals shall be accounted for by the owner or custodian whenever called upon by the commissioner of agriculture to do so. All tuberculin sold, given away or used within this state, shall bear a label stating the name and address of the person or firm or institution making it and the date of preparation. All persons selling or giving away tuberculin shall report to the commissioner of agriculture the amount of tuberculin sold or given away, the degree of strength, the name and address of the person to whom sold or given and the date of delivery; said report shall include the address of and be signed by the person making it. Persons buying or procuring tuberculin shall not use or dispose of it until assured in writing by the person from whom the tuberculin is received that its delivery to said person has been reported to the commissioner of agriculture or unless they have themselves reported its receipt to the commissioner of agriculture with information required to be furnished by those who distribute tuberculin, and such persons buying or procuring tuberculin shall keep a correct record of

the amount received, the amount used and the amount on hand and shall report these facts whenever any tuberculin is used, and if at any time tuberculin left on hand is not deemed fit for use or is not to be used, the said person shall forward the same to the commissioner of agriculture with a statement of where and when procured, the amount procured at the time, the amount of it that was used, and his name and address. If the amount forwarded to the commissioner of agriculture and the amount used does not total the amount procured or purchased a statement shall be made as to what became of the remainder. No person or persons shall treat any bovine animal with any material or substance nor in any manner for the purpose of preventing a normal reaction on the part of such animal to the tuberculin test. No person shall knowingly sell or offer for sale any animal that has reacted to the tuberculin test, without giving information of such reaction to the purchaser. No animal that has reacted to the tuberculin test shall be sold or removed from the premises where the test was made without permission in writing from the commissioner of agriculture. Any veterinary surgeon violating any of the provisions of this section shall, in addition to the penalties and fines prescribed in the agricultural law, forfeit his certificate to practice and thereafter be debarred from practicing his profession within the state of New York until such disability is legally removed.

Sec. 2. This act shall take effect immediately.

State of New York,
Office of the Secretary of State, } *ss.:*

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom and of the whole of said original law.

SAMUEL S. KOENIG,
Secretary of State.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS—JANUARY SESSION, 1909—PUBLIC LAWS.

CHAPTER 385.—An Act Creating a State Board of Veterinarians and Regulating the Practice of Veterinary Medicine, Surgery, and Dentistry—Passed April 8, 1909.

It is enacted by the General Assembly as follows:

Section 1. There shall be a state board of veterinarians consisting of five members. At the January session of the general assembly, A. D. 1909, the governor, with the advice and consent of the senate, shall appoint one member of said board to hold office until the first day of February, A. D. 1910; one member to hold office until the first day of February, A. D. 1911; one member to hold office until the first day of February, A. D. 1912; one member to hold office until the first day of February, A. D. 1913; and one member to hold office until the first day of February, A. D. 1914. Thereafter at the January session of the general assembly in each year the governor shall, with the advice and consent of the senate, appoint one member of said board, to hold office until the first day of February in the fifth year after his appointment, to succeed the member of said board whose term expires. Any vacancy which may occur in said board when the senate is not in session shall be filled by the governor until the next session thereof, when he shall, with the advice and consent of the senate, appoint some person to fill such vacancy for the remainder of the term. The persons eligible to appointment on said board shall be veterinarians who are graduates of some reputable school of veterinary medicine, surgery, and dentistry of a standard recognized by the Rhode Island Veterinary Medical Association, and who shall have been actually engaged in practice as veterinarians in the state of Rhode Island for at least five years next prior to their appointment.

Sec. 2. The members of said board shall organize annually, on the second Tuesday in February in each year, by the election of a chairman, treasurer, and secretary, who shall hold their offices for one year. Three members shall constitute a quorum for all purposes. Said board shall hold regular meetings on the second Tuesday in June and the second Tuesday in February in each year, and such special meetings, and at such times and places, as they may determine. Said board shall make by-laws and rules, not inconsistent with law, as are necessary to carry out the provisions of this act. The first organization of said board after appointment under this act shall be made within thirty days of its passage.

Sec. 3. Every person engaged in the practice of veterinary medicine, surgery, and dentistry in this state shall, on or before the first Monday in June, A. D. 1909, register with said board: *Provided,* he has been in active practice in said profession for

three years, or more, next prior to the date of the passage of this act; and the fee for said registration shall be five dollars, to be paid to said board with the application. The board shall furnish a suitable certificate of said registration. Regularly each year thereafter, in the month of June, a renewal certificate shall be granted, and the fee for each renewal shall be one dollar. Three years of active practice in the state of Rhode Island shall be essentials of registration under this section. It shall be the duty of the state board of veterinarians to pass upon all diplomas to be exhibited at the office, or place of business, or other public place, by an applicant for registration under the provisions of this act. And the continued use or exhibition of a diploma objected to by vote of this board, after notice in writing and an opportunity to be heard before said board, shall be deemed sufficient reason for said board to revoke the certificate of registration in such case.

Sec. 4. Any person not entitled to registration under section three of this act, who has attained the age of twenty-one years and is a graduate of a regular veterinary, medical, surgical, and dental school or college of a standard recognized by the Rhode Island Veterinary Medical Association, may apply to said board for examination with reference to his skill and knowledge of veterinary medicine, surgery, and dentistry, and be so examined at reasonable times, to be determined by said board. Any person passing an examination satisfactory to said board shall be furnished with a certificate to that effect: *Provided*, that prior to said examination, he has paid a fee of ten dollars to the secretary of said board. None of the provisions of this act shall in any way apply to veterinarians in the service of the United States government in this state. Subjects of examination shall be: veterinary anatomy, chemistry, physiology, obstetrics, pathology, therapeutics, materia medica, contagious diseases, and theory and practice of veterinary medicine, surgery, and dentistry, or any kindred subject which applies to veterinary science.

Sec. 5. The fee for examination, as stated in section four, shall in no case be returned to the applicant if he fails to pass, but shall be applied to the expenses of the board. An applicant who fails to pass the first examination may at a later date, upon the payment of five dollars, be allowed to take a second examination. All subsequent examinations shall be given at times satisfactory to the board, and a fee of five dollars shall accompany the applications for the same. All examination fees received under

this act shall be used towards defraying the expenses of this board. The actual expense of said board shall be paid out of the funds received from applicants for examination and registration:. *Provided,* that in no event shall such expenses be a charge against the state. After all necessary expenses of said board have been paid by the treasurer thereof out of the moneys received by it from said fees, including five dollars for each day's actual attendance to each member of said board, and three cents a mile for mileage, if there be funds for that purpose, the balance of the moneys received by it from said fees under this act shall be paid to the general treasurer. No money shall be applied to the payment of the expenses of said board for said compensation except that received from said fees as aforesaid.

Sec. 6. Said board annually shall present to the general assembly, in the month of January, a detailed statement of the receipts and disbursements of said board during the preceding year, with a statement of its acts and proceedings, and such recommendations as said board may deem proper.

Sec. 7. Any person who, not being then lawfully authorized to practice veterinary medicine, surgery, and dentistry within this state, and so registered according to law, shall practice veterinary medicine, surgery, and dentistry, or any of its branches, after having received, or with the expectation of receiving, therefor, either directly or indirectly, any bonus, gift, or compensation, or who shall open an office with intent to practice, or who shall hold himself out to the public as a practitioner of, veterinary medicine, surgery, and dentistry, whether by appending to his name the title of doctor, or any abbreviation thereof, or V. S., or any other title or designation implying a practitioner of veterinary medicine, surgery, and dentistry, or in any other way, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not exceeding fifty dollars, and upon each and every subsequent conviction shall be fined not exceeding one hundred dollars or be imprisoned not exceeding thirty days, or be both fined and imprisoned.

Sec. 8. Complaints for the violation of the provisions of this act may be made by any person, and if made by a member of said board, said member shall be exempt from giving surety for costs on any complaint made as aforesaid.

Sec. 9. The provisions of this act shall not be construed to prohibit advice or service by a person not entitled to practice veterinary medicine, surgery, and dentistry under the provisions

of this act: *Provided,* he does not hold himself out as a practitioner within the meaning and intent of this act.

Sec. 10. The board may, after due notice and hearing, in its discretion, refuse to grant the certificate provided for in section four of this act to any veterinarian who has violated any of the laws of this state, or who has been guilty of gross unprofessional conduct or conduct of a character likely to deceive or defraud the public; and may, after due notice and hearing, revoke any certificate, issued or granted by it heretofore, for like cause or for any fraud or deception committed in obtaining said certificate, or for any other cause which, in the opinion of said board, shall render the holder of such certificate an unfit person to practice veterinary medicine, surgery, and dentistry in this state. Any person aggrieved by any decision or ruling of said board may, within ten days after receiving said notice, exclusive of Sundays and legal holidays, take an appeal therefrom to the superior court sitting at Providence, or the superior court sitting in the county in which said person may dwell, and shall file therein his reasons of appeal, and serve a copy thereof on the secretary of said board. And said superior court shall, as soon as may be, hear and determine said appeal.

Sec. 11. This act shall take effect on and after its passage, and all acts and parts of acts inconsistent herewith are hereby repealed.

A true copy.

Attest:

CHARLES P. BENNETT,
Secretary of State.

JUNE 2, 1909, AMERICAN VETERINARY REVIEW, New York. Gentlemen: Enclosed find P. O. for three dollars to one year's subscription to AMERICAN VETERINARY REVIEW. I have been a subscriber for the past seventeen years and must acknowledge the REVIEW is one of the most welcome visitors to my office. Yours very truly, R. S. Heer, Platteville, Wis.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY will celebrate its twenty-fifth anniversary, July 15 and 16, at Atlantic City. The meetings of this association are always interesting and instructive, but the occasion, and the place of meeting (as Secretary Lowe has poetically phrased it), at America's famous Mecca-by-the-sea, makes this occasion doubly attractive.

NEWS AND ITEMS.

DR. AND MRS. W. H. H. VARNEY announce the marriage of their daughter May Phila to Dr. Frank Wilbut Chamberlain on Wednesday, June 16, 1909, at East Charlotte, Vt.

DR. J. F. DE VINE, Acting Chief Veterinarian for the New York State Department of Agriculture, delivered an address before the Cayuga County Medical Society, at the Masonic Temple, Auburn, N. Y., June 17, on "Rabies."

DR. B. F. KAUPP, of Fort Collins, Colorado, left there about the middle of June to attend the Omaha meeting, thence to Chicago, where he will devote six weeks to the study of special pathology and experimental work at the Chicago University.

DEGREES OF SENSE.

There's fine sense and coarse sense,
  Each good in its way,
But the man who has horse sense
  Knows when to say neigh.

STANDARDIZATION OF DISINFECTANTS.—A movement is on foot to bring about the standardization of disinfectants in this country. Carbolic acid crystals is to be the standard. The coefficiency of materials composing disinfectants, by thus demonstrating their comparative value to this standard, will be rated; so that purchasers of disinfectants may be in a position to know just how much disinfectant they are buying, and the surgeon how much he is using, when employing a standardized disinfectant.

A CORNELL MAN GREATLY HONORED.—Dr. Winfred B. Mack, who soon after his graduation from the New York State Veterinary College became Professor of Bacteriology at the University of Nevada, has recently been appointed State Bacteriologist of that commonwealth. A part of his work will consist in diagnosing infectious diseases for the benefit of the health officers and physicians of the State. He has also been elected a member of the Reno Board of Health at a recent meeting of the City Council. We wish the doctor all the success he so well deserves.

DR. LEONARD PEARSON AND HIS MOTHER CONVALESCENT.—Those friends of Dr. Leonard Pearson, of Philadelphia, who chanced to read in the newspapers of the accidental asphyxiation of himself and his mother by illuminating gas, on June 9th, will be pleased to learn that they are both doing very well and regaining their usual physical condition. That they had a close call is certain; especially Mrs. Pearson, in whose case it was necessary to resort to blood transfusion. Dr. C. J. Marshall promptly offered his blood to be drawn. Connection was made at the wrists and blood flowed from Dr. Marshall's body into that of Mrs. Pearson for forty-five minutes; at the same time about sixteen ounces of devitalized blood was being drawn from Mrs. Pearson's opposite wrist. This noble act on the part of Dr. Marshall is characteristic of him, as all who have the honor of his acquaintance know. Oxygen restored Dr. Pearson to consciousness late on Wednesday, and Mrs. Pearson became conscious Thursday morning, the accident having occurred about daybreak on Wednesday.

WE are indebted to Dr. Jas. F. Ryder, Inspector in charge at the port of Boston, for the following authentic account of the horrible affair that took place in the packing houses at Somerville, Mass., on June 5 last: "Yours of the 7th at hand. The affair mentioned happened at just 2 P. M. on June 5 at the North Packing & Provision Co., Somerville, Mass. Hogs were being killed at the rate of 560 per hour. John Murphy, whose work consists of cutting the hogs' heads nearly off, exposing the cervical glands so that the inspector can see them, was at work on the moving table; next to him stood Dr. Daniel S. Hays (Harvard), Government Inspector. Dr. Hays was bending over a hog when Murphy suddenly drew his 10-inch knife across the back of Dr. Hays' neck, exposing the cervical vertebræ. Dr. Hays turned, and then Murphy plunged the knife in the left side of the abdomen and turned the knife. The intestine was completely severed in one place and hacked in others. About six inches of omentum protruded from the wound. At the hospital about six inches of intestine was removed and the ends brought together by the use of the Murphy button. Dr. Hays rallied well and to-day (June 8) the surgeon informs me he has about an even chance for recovery. After attacking Dr. Hays, he (Murphy) rushed from floor to floor stabbing anyone he met. Five men were killed and four badly injured. Dr. Fred Saunders (A. V. C.), Vet.

Inspector, had a very narrow escape. Murphy was within a few yards of him before the doctor saw him, but managed to get in a cooler and pull the door shut. Murphy was captured in the cellar, a raving maniac."

SANE HANDLING OF TUBERCULOSIS.

APROPOS of what has been said editorially on this subject in this issue of the REVIEW, we reproduce the following from *The Breeder's Gazette* of June 16, 1909:

"The tuberculin test is to be investigated as to its usefulness by an Illinois legislative committee with $10,000 at its disposal. The bill providing for this work was sanctioned by the Governor's signature, June 10. The operation of the tuberculin test, the conditions under which it is a successful means of diagnosis and the possible abuses which make it a farce, are well known. An expenditure of $10,000 to investigate it is money burned. Time has proved that the tuberculin test applied to cattle that are not excited, overheated or near parturition, or suffering from the effects of other sickness, or hardships or shipment, is a very accurate means of indicating the presence or absence of tuberculosis, provided the animals have not at a recent previous time received injections of tuberculin.

Tuberculin trusted to the hands of unscrupulous persons can be used to vitiate completely the results from this otherwise reliable test. All cattlemen should know that at present the value of the test depends on the honesty of the owner of the cattle. Blind reliance on a certificate of test without knowledge of the previous owner is folly. If the tuberculin test is to mean anything in general use among men of all degrees of honesty none but reputable officials should be permitted to handle it. Its manufacture, sale and application must be hedged about with such strict supervision that its fraudulent use will be impossible. Tuberculin, like whiskey, can be made by moonshine and it will be no simple mandatory law that will effectually safeguard it. Vigilant inspection will be necessary.

The cattle interests of the country are sorely in need of intelligent action on this question. Some senseless laws requiring wholesale precipitate slaughter of tubercular cattle have driven owners to seek some means of protection. The trend of legislative thought is pointing more and more strongly to the extension of drastic laws in states harboring the greatest cattle in-

terests. Strange as it may seem there is still suggestion of the "kill all" policy—to kill all reacting cows. It would be a sad day if any legislature should so far forego sanity as to enact such a statute. It would mean a shotgun reception to the pole-tax inspectors—a state of real anarchy. There must be more of fact and less of hypothesis before such a policy can be adopted in the name of public health. Experience has abundantly proved that by the Bang method of segregation employed in Denmark, tuberculous cows can be allowed an extended career of usefulness with less financial loss to the owner than if their infection had not been discovered.

To prevent dealers juggling with tuberculous cattle an official brand on all reacting animals would be effective. When tuberculosis once is firmly lodged in the system the animal's health is always open to suspicion so the brand would work no injustice. The branding iron applied to tuberculous cattle would give them a non-transferable identification that would be always legible and carry its own warning.

The problem is primarily one for the cattle grower, not the state. As a matter of self-protection on a dollars and cents basis each cattle owner should ascertain what animals in his herd if any, carry the disease, and then make the most sensible disposition of them. If valuable for reproduction they should be segregated; if not valuable enough for such treatment they should be sent to slaughter. If the state attempts to enforce on the farmer measures which he should take in self-protection, it should be a rational regulation with decent respect for property rights of farmers as well as protection to buyers of cattle at private and public sales. The control of the tuberculin test by government officials and the branding, not the compulsory slaughter, of reacting animals is the first logical step in dealing officially with the problem. Such initial steps followed by conservative regulation of the sale of reacting cattle will give quicker and more equitable results than attempts at radical legislation looking to the confiscation of the condemned property. Farmers in their own interest should hasten the eradication and prevent the spread of tuberculosis so far as possible. Conservative official aid can help them in the fight."

THE ORIGIN OF THE RECENT OUTBREAK OF FOOT AND MOUTH DISEASE IN THE UNITED STATES, is the title of circular 147 issued June 16, 1909, by the U. S. Department of Agri-

culture, through the Bureau of Animal Industry, and traces the disease from the point of outbreak in Pennsylvania on November 10, 1908, through New York, Maryland, Michigan, finally to calves that had been used for vaccine by a Detroit establishment. The fact that the cases of longest standing were found among these calves, caused Secretary of Agriculture James Wilson and Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, to suspect that the vaccine was contaminated with the virus of foot-and-mouth disease. As the United States Public Health and Marine Hospital Service was charged by the law with the supervision of biological products used in human medicine, that service was requested to join the Bureau of Animal Industry in making an investigation.

The mains facts as brought out in the report show that certain smallpox vaccine virus was imported by an eastern firm, which was contaminated with the infection of foot-and-mouth disease, and that in May, 1908, the western firm procured some vaccine of this strain. Calves used by the latter firm in propagating vaccine, were sent October 16th to the Detroit stock yards and thence on the same day to a farm near Detroit. On October 20th three carloads of cattle from points in Michigan reached the Detroit stock yards and were put into the pens that had been occupied by the vaccine calves four days previously. Some of these cattle were sold for slaughter at Detroit, while the remainder were shipped to Buffalo, and some were reshipped to Danville and Watsontown, Pa., where the disease was first observed some days later. The disease spread to various places in Pennsylvania and New York and to one locality in Maryland.

Three separate series of experiments were made by Doctors Mohler and Rosenau. Young cattle and sheep were inoculated with vaccine virus obtained from both firms. Foot-and-mouth disease was produced in experimental animals by the use of vaccine of the same strain obtained from both sources, while other strains of vaccine tested gave negative results. The disease was also transmitted from one animal to another through several series, in two instances by natural modes of infection.

The investigation also indicates that the outbreaks of foot-and-mouth disease in New England in 1902-3 were probably due to contaminated vaccine of Japanese origin from the eastern firm. While an investigation was made at that time, the results were confusing, so that it was not definitely determined that the outbreaks were due to contaminated vaccine virus. In the recent investigation by Doctors Mohler and Rosenau, however, they

used animals which had been vaccinated and were therefore immune to vaccinia or cowpox, so that in case the infection of foot-and-mouth disease was present in the vaccine under suspicion the lesions of that disease would not be suppressed or obscured by those of vaccinia. By this method and by means of intravenous inoculation they were able to detect the contaminating infection when it might not otherwise have been discovered.

The fact that the infection was present in the vaccine virus of the eastern firm for so long a period, but was not transmitted to outside cattle, was doubtless due to this firm's practice of killing its calves after taking the vaccine virus. The western firm, on the other hand, rented their calves and placed them again on the market a short time after the vaccine material was taken. In this way the disease spread from the vaccine stables of the western firm, but not from those of the eastern firm, although it was the vaccine virus from the latter establishment that infected the former's cattle.

According to Doctors Mohler and Rosenau, foot-and-mouth disease is primarily and principally a disease of cattle, and affects man only secondarily and casually. Children are occasionally infected by drinking unboiled milk during the periods in which the disease is prevalent in the neighborhood, while persons in charge of diseased animals may become infected through contact with the diseased parts or by milking, slaughtering, or caring for the animals. The disease when communicated to man, however, is very seldom fatal, the affection usually being too slight to come to the notice of the family physician.

As soon as the facts regarding the contamination of vaccine became known the licenses of the two firms involved were at once suspended, all the suspected vaccine virus on hand was destroyed and that upon the market withdrawn, and other measures of a radical nature were taken. The report commends the intelligent and prompt co-operation of these two great firms in accomplishing this end. After an examination of every strain of vaccine upon the market it is stated that there is now upon the market no vaccine contaminated with the virus of foot-and-mouth disease. Regulations have been formulated with a view to preventing hereafter the propagation of contaminated vaccine virus. No instance of the transmission of foot-and-mouth disease to man through vaccine virus has been recorded, and it is considered doubtful, in view of the tests made, if it is possible to reproduce the disease in man by the cutaneous inoculation commonly used in the process of vaccination.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alumni Ass'n, N. Y.-A. V. C.....	.....	141 W. 54th St.	L. L. Glynn, N. Y. City.
American V. M. Ass'n.....	Sept. 7-10, 1909.	Chicago.....	R. P. Lyman, Hartford, Conn.
Arkansas Veterinary Ass'n.....	.....	.....	Horace E. Rice, Little Rock.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	D. D. Tierney, Chicago, Ill.
California State V. M. Ass'n.....	.....	San Francisco.	J. J. Hogarty, Oakland.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Chicago Veterinary Society.....	2d Tues. ea. mo.	Chicago	J. M. Parks, Chicago.
Colorado State V. M. Ass'n.....	June, 1909.....	Denver	M. J. Woodliffe, Denver.
Connecticut V. M. Ass'n.....	.....	New Haven ..	B. K. Dow, Willimantic.
Genesee Valley V. M. Ass'n.....	.....	Rochester.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	Nov. 16-17, 1909.	Athens.....	P. F. Bahnsen, Americus.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Illinois State V. M. Ass'n.....	July 13, 1909....	Bloomington..	J. H. Crawford, Harvard.
Illinois V. M. and Surg. A.....	Jan. and Aug...	Louisville.....	W. A. Swain, Mt. Pulaski.
Indiana Veterinary Association...	January, 1910 ...	Indianapolis..	E. M. Bronson, Indianapolis.
Iowa Veterinary Ass'n.....	.....	Ft. Dodge....	H. C. Simpson, Denison.
Kansas State V. M. Ass'n.....	.....	Topeka.....	B. Rogers, Manhattan.
Kentucky V. M. Ass'n.....	.....	Not decided ..	D. A. Piatt, Lexington.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	S. Lockett, Glenolden.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n	July 14, 1909....	Portland	A. Joly, Waterville.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Michigan State V. M. Ass'n.....	Jan. 25-26, 1910.	Saginaw	Judson Black, Richmond.
Minnesota State V. M. Ass'n.....	July 14-15	Stillwater	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n....	.....	.....	J. C. Robert, Agricultural Col.
Missouri Valley V. Ass'n.....	June 16-17, 1909..	Omaha.....	B. F. Kaupp, Fort Collins, Colo.
Missouri Vet. Med. Ass'n	.....	St. Joseph....	F. F. Brown, Kansas City.
Montana State V. M. A.....	.....	Helena.....	W. S. Swank, Miles City.
Nebraska V. M. Ass'n.....	.....	Grand Island.	H. Jensen, Weeping Water.
New York S. V. M. Soc'y.....	Aug. 25, 26, 27..	Ithaca	J. F. De Vine, Goshen.
North Carolina V. M. Ass'n.....	July 2, 3.....	Wilmington ..	Adam Fisher, Charlotte.
North Dakota V. M. Ass'n.....	Call of Sec'y....	Fargo	C. H. Martin, Valley City.
Ohio State V. M. Ass'n.....	.....	Columbus.....	Sidney D. Myers, Wilmington
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
Passaic Co. V. M. Ass'n.....	Call of Chair...	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Pennsylvania State V. M. A.....	Sept.....	Philadelphia..	F. H. Schneider, Philadelphia.
Philippine V. M. A.....	.....	.....	Chas. G. Thomson, Manila.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	J. S. Pollard, Providence.
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Schuylkill Valley V. M. A.....	June 16, 1909....	Reading	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	June, 1909.....	Philadelphia..	B. T. Woodward, Wash'n, D.C.
South Dakota V. M. A.....	2d Tues. in Jy. '09	Sioux Falls...	J. A. Graham, Sioux Falls.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Edmonds, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp..	4th Tues. ea. mo.	407 Ill. Ave....	H. R. Collins, So. St. Joseph.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Vermont Vet. Med. Ass'n	July	Rutland	F. W. Chamberlain, Burlington
Veterinary Ass'n of Alberta... ..	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo..	514—9th St., N. W.....	M. Page Smith, Wash., D. C.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....	July 14-15, 1909.	Atlantic City.	W. Herbert Lowe, Paterson.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Veterinary Practitioners' Club....	Monthly.....	Jersey City ...	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n	July 9, 1909.....	Hampton	W. G. Chrisman, Charlo'sv'le.
Washington State Col. V. M. A ..	1st & 3d Fri. Eve.	Pullman.....	R. G. McAlister, Pullman.
Washington State V. M. A.....	.....	Seattle.....	J. T. Seely, Seattle.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Wisconsin Soc. Vet. Grad.....	July 13-14, 1909.	Grand Rapids.	J. P. West, Madison.
York Co. (Pa.) V. M. A.....	Sept. 7, 1909....	York. Pa.....	E. S. Bausticker, York, Pa.

PUBLISHERS' DEPARTMENT.

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